FOUNDED IN 1856

RAILWAY AGE

A.A.R. Mechanical and Purchases & Stores Division Meetings

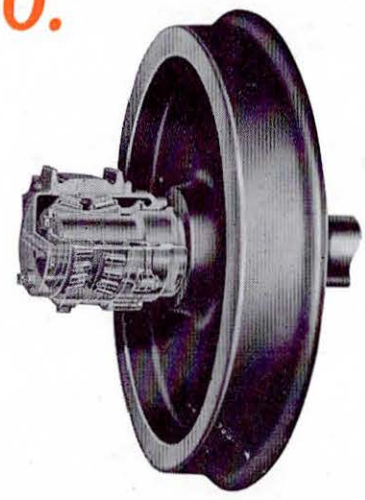
McCARTNEY LIBRARY
GENEVA COLLEGE

JUNE 26, 1948

FIRST OFF THE LINE FOR C. & O.

This is the first of the 1,000 Timken "Roller Freight" hopper cars ordered by the Chesapeake & Ohio Railroad from General American Transportation Corporation. The white stripe under the C. & O. name denotes that the car is equipped with Timken roller bearings and boxes.

The X-ray illustration at right shows the Timken bearing application being used on these new C. & O. cars.



THE TIMKEN ROLLER BEARING COMPANY
CANTON 6, OHIO - CABLE ADDRESS "TIMROSCO"

Be sure to visit The Timken Roller Bearing Company Building at the Chicago Railroad Fair July 20 to Sept. 6.

TIMKEN
TRADE-MARK REG. U. S. PAT. OFF.
RAILWAY ROLLER BEARINGS

NOT JUST A BALL NOT JUST A ROLLER THE TIMKEN TAPERED ROLLER BEARING TAKES RADIAL AND THRUST LOADS OR ANY COMBINATION

"BUFFALO"

UNIT BRAKE BEAM

NEVER UNDERESTIMATE THE WORD "BUFFALO" WHEN YOU THINK OF UNIT BRAKE BEAMS

- "Buffalo" is the ORIGINAL Unit Brake Beam
- "Buffalo" is the TIME-TESTED Unit Brake Beam
- "Buffalo" is the SERVICE-TESTED Unit Brake Beam

Since 1937 more than 310,000 of these sturdy, solid-truss Unit-type "Buffalo" Brake Beams have been bought by 86 railroads and private car lines.

Less than 1/10 of 1% of these beams were specifically bought for stand-by stock or repairs.

NO OTHER BRAKE BEAM CAN APPROACH THAT RECORD! "Buffalo" Units definitely STAND UP.

BUFFALO BRAKE BEAM CO.

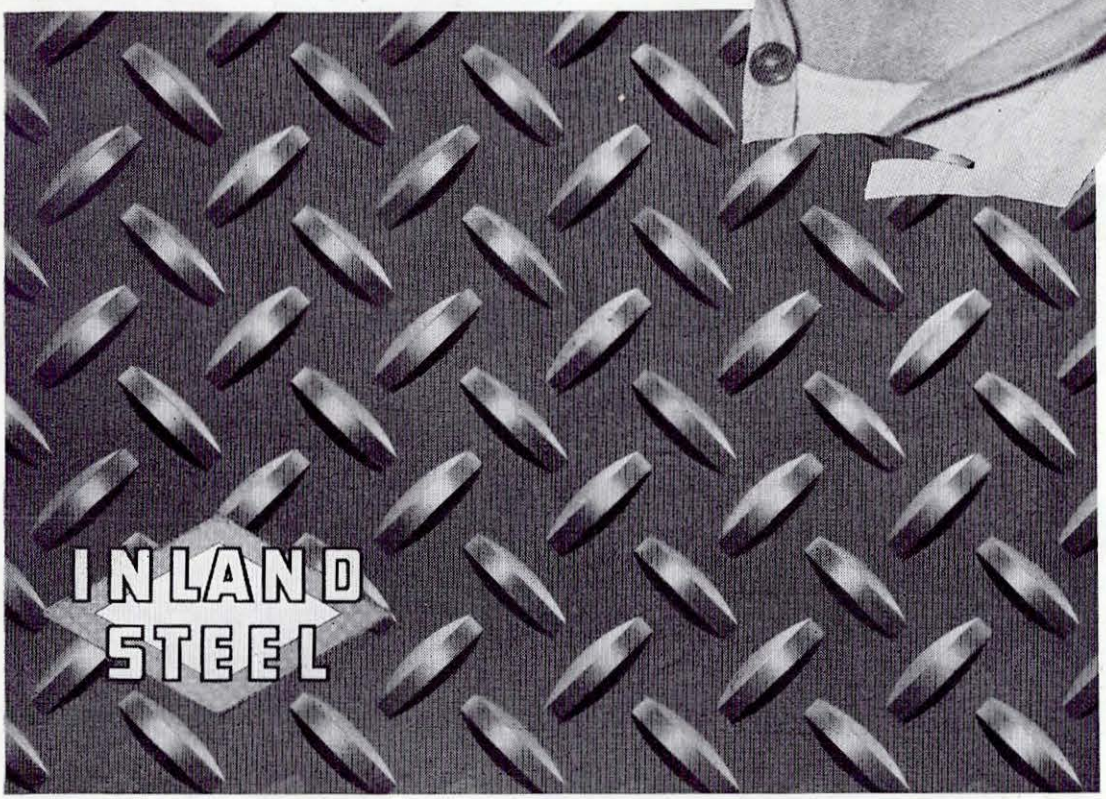
140 Cedar Street New York

SAFE FLOORS?

BROTHER, GIVE ME 4-WAY FLOOR PLATE!

This man's right, Mr. Management. Workers appreciate the extra safety they get when you install Inland's modern, skid-resistant flooring in your plant. Its 4-way safety lug pattern provides built-in protection and economy wherever feet or equipment must go . . . floors, walkways, ramps, platforms, steps.

What's more, Inland 4-Way Floor Plate reduces maintenance problems. It won't burn, warp, crack, splinter, or absorb liquids, and it's easily installed. Stocked by leading warehouses.



Write for Booklet

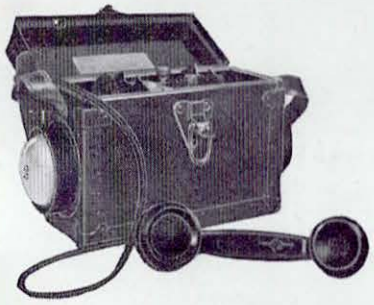
INLAND STEEL COMPANY

38 S. Dearborn Street, Chicago. Sales Offices: Chicago, Davenport, Detroit, Indianapolis, Kansas City, Milwaukee, New York, St. Louis, St. Paul.

INLAND 4-WAY FLOOR PLATE

Published weekly by Simmons-Boardman Publishing Corporation, Orange, Conn. Executive Offices, 30 Church Street, New York 7, N. Y. Entered as second class matter at Orange, Conn., under the act of March 3, 1879. Subscription price $6.00 for one year. U. S. and Canada. Single copies, 50 cents each, Vol. 124, No. 26

Wagon Trains didn't need Fast Communication—but MODERN



The popular Type 10 Portable Telephone for yard workers and main line crews.

Type 40 desk model Monophone for offices and business cars.

Wall Telephone for Intra-train use of crews and passengers.

RAILROADING REQUIRES

Automatic Electric

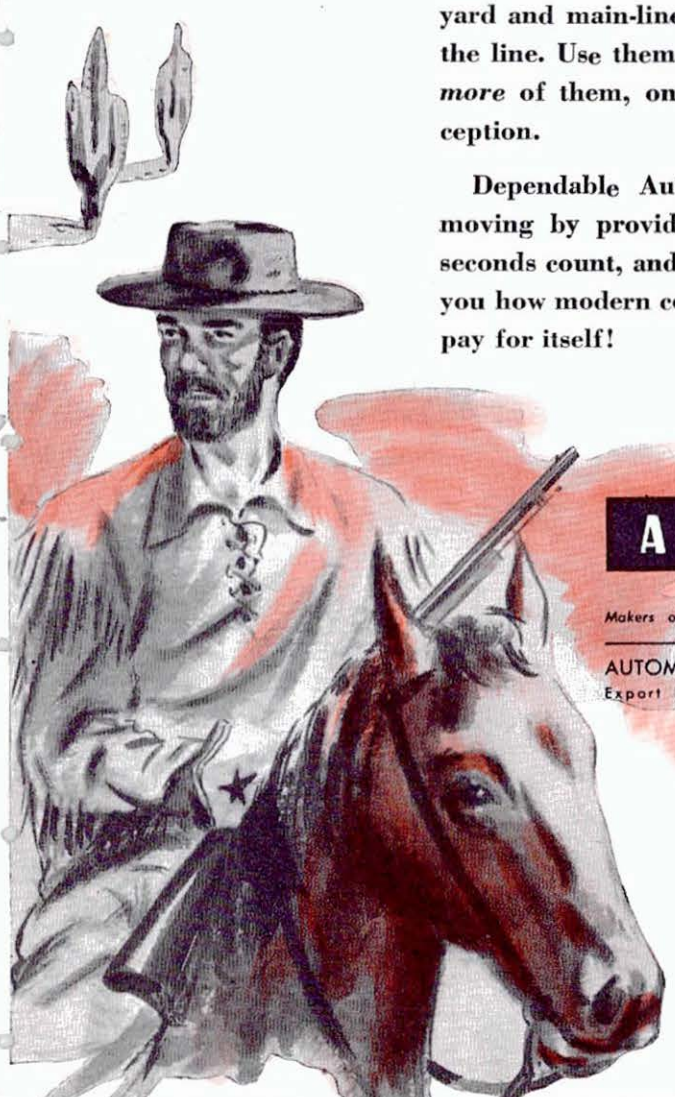
TELEPHONES

No, wagon trains didn't need telephones! But modern high-speed railroading requires adequate communication—for the safety of passengers and for most efficient operation of costly equipment.

AUTOMATIC ELECTRIC INTRA-TRAIN TELEPHONES provide the quick, dependable, two-way contact between train crew and engine cab that is necessary to maintain today's high speeds and safety standards —*plus* the modern luxury of car-to- car communication for passengers.

AUTOMATIC ELECTRIC RAILROAD SERVICE TELEPHONES for yard and main-line use will help to speed train movements all along the line. Use them liberally; their unique circuit permits you to use *more* of them, on *longer* lines, and still get clear, high-fidelity reception.

Dependable Automatic Electric telephones help to keep trains moving by providing quick communication—in emergencies when seconds count, and also for the daily routine of business. Let us show you how modern communication "By Automatic Electric" will quickly pay for itself!



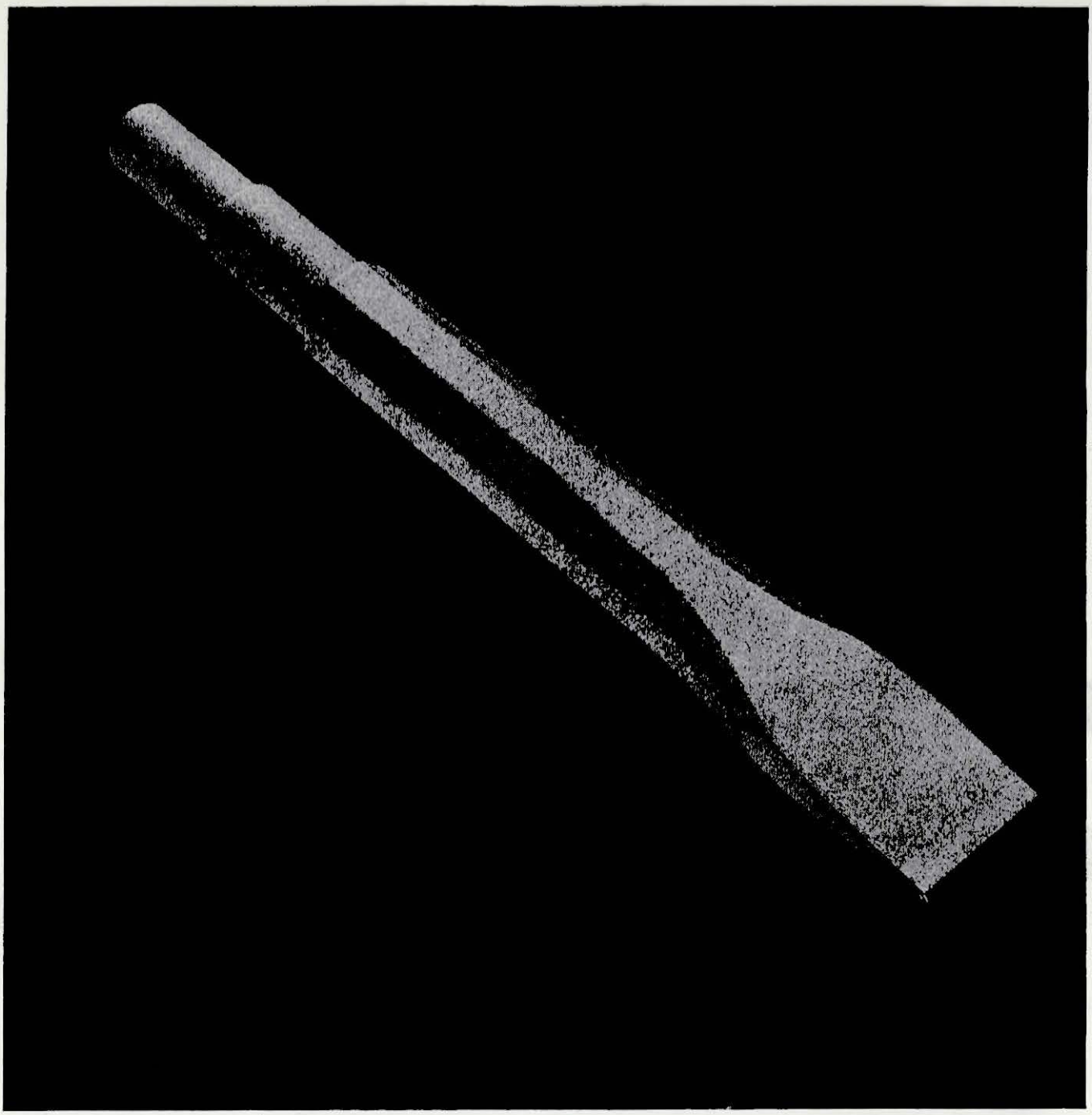
AUTOMATIC ELECTRIC

Makers of Telephone, Signaling and Communication Apparatus *Electrical Engineers, Designers and Consultants*

Distributors in U. S. and Possessions

AUTOMATIC ELECTRIC SALES CORPORATION, 1033 W. Van Buren St., Chicago 7, U. S. A.

Export Distributors: INTERNATIONAL AUTOMATIC ELECTRIC CORPORATION



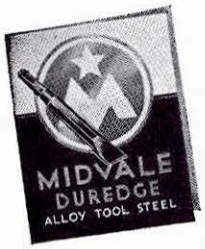
THE MIDVALE

Offices: NEW YORK • • • CHICAGO • • • PITTSBURGH • • •

MIDVALE SHOCK RESISTING TOOL STEELS

For many years, Midvale Shock Resisting Tool Steels have been helping to solve problems inherent in the application of tools where severe shock conditions are encountered. Among the Midvale Shock Resisting Tool Steels are Midvale Duredge, Midvale Beta Chisel steel, Midvale Salvo rivet set steel, Midvale Multole punch steel, Midvale Va-Cro tool steel and Midvale Non-Tempering tool steel. All have Midvale custom steel quality.

Specific catalog information concerning these materials is available upon request or our metallurgical staff will be glad to make suggestions based on your particular requirements.



Write for your copy of the Midvale Duredge Alloy Tool Steel folder.

CUSTOM STEEL MAKERS TO INDUSTRY

• FORGINGS AND RINGS • STAINLESS AND TOOL STEEL BARS • CORROSION AND HEAT RESISTING CASTINGS

COMPANY NICETOWN PHILADELPHIA

WASHINGTON • • • CLEVELAND • • • SAN FRANCISCO

UNION ASBESTOS

MEANS PROGRESS IN INSULATION AND PACKING

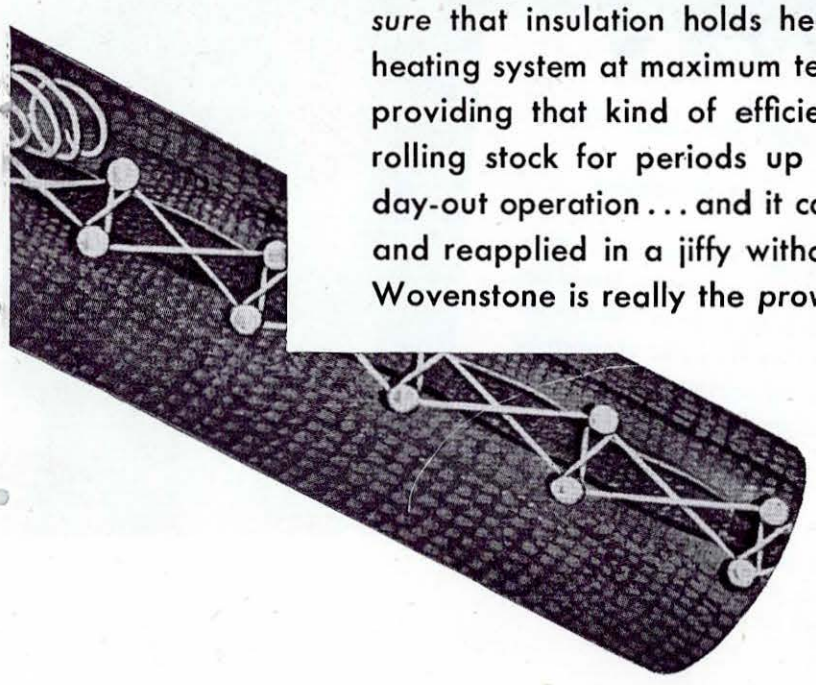
AND RUBBER CO.

332 S. MICHIGAN AVENUE CHICAGO 4,

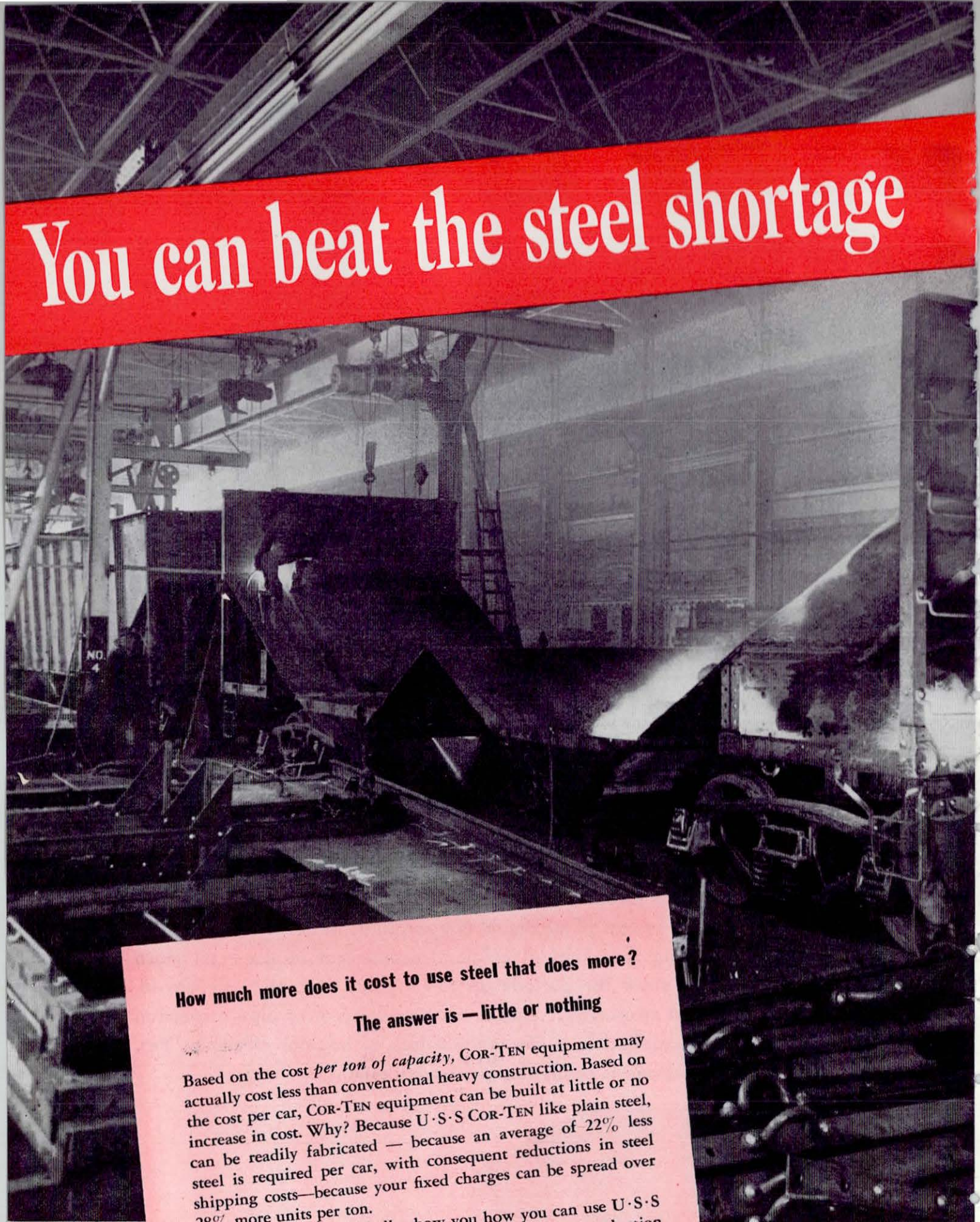
Comfort

begins OUTSIDE the car when steam pipes are COVERED by WOVENSTONE!

Comfort is the keystone upon which revenues are going to be sustained—and built. To assure maximum comfort, you must be *sure* that insulation holds heat in—delivers steam to the car heating system at maximum temperatures. Wovenstone has been providing that kind of efficient, economical service—on much rolling stock for periods up to 12 years of continuous day-in, day-out operation . . . and it can be removed for pipe inspection and reapplied in a jiffy without loss of original efficiency. Yes, Wovenstone is really the *proven* insulation!



ILLINOIS • NEW YORK • SAN FRANCISCO



You can beat the steel shortage

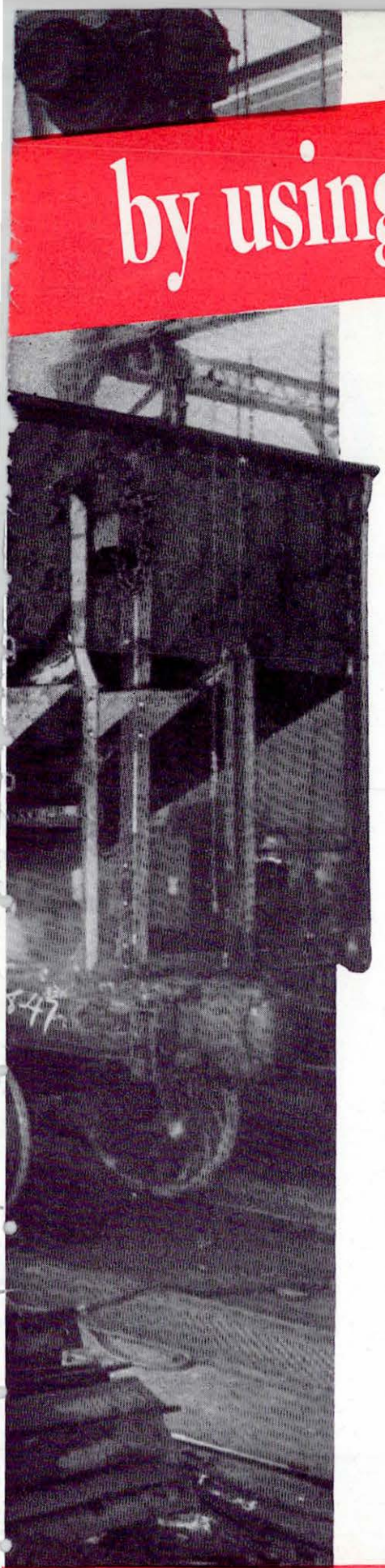
How much more does it cost to use steel that does more?

The answer is — little or nothing

Based on the cost *per ton of capacity*, COR-TEN equipment may actually cost less than conventional heavy construction. Based on the cost per car, COR-TEN equipment can be built at little or no increase in cost. Why? Because U·S·S COR-TEN like plain steel, can be readily fabricated — because an average of 22% less steel is required per car, with consequent reductions in steel shipping costs—because your fixed charges can be spread over 28% more units per ton.

Our engineers will gladly show you how you can use U·S·S COR-TEN to beat the car shortage by getting *bonus* production from your steel supply—and also how to make your equipment more modern, more efficient and more revenue-producing.

UNITED STATES STEEL



by using steel that does more!

By building *light* with U·S·S COR-TEN you can get more cars from the steel available ... and they'll be better cars, too.

THIS year, a definite tonnage of our steel production is being made available for freight car construction. If this tonnage is used by car builders and railway car shops in the form of carbon steel, a certain number of car units can be produced.

BUT, if the same tonnage is used in the form of high-strength U·S·S COR-TEN, and cars are built lighter by its use, many *more* car units can be produced than would be possible otherwise. The ratio roughly is—20,000 heavy, conventional, old-style cars, as against a possible 25,000 modern, lightweight, big-capacity units.

And here is something to remember: —When you save steel by cutting car weight with U·S·S COR-TEN, the percentage increase in the number of cars that can be built is always *more* than the percentage of steel saved per car. Why? Simply because less steel is required per car.

It's like this. Suppose a carbon steel car takes 10 tons of steel. Then you get 100 cars from 1000 tons of steel. But if a COR-TEN car requires only 8 tons of steel, 1000 tons will make 125 cars. In other words, a 20% decrease in weight results in 25% increase in units.

These "steel-saving" COR-TEN cars save in other ways too. Because they weigh less they save in the fuel and motive power required to move them. Because they haul added payload in place of dead weight they save in the number of cars required to move a given amount of freight. And because U·S·S COR-TEN has 4 to 6 times greater resistance to atmospheric corrosion than plain structural steel, and is stronger, tougher and more resistant to impact, these lighter COR-TEN cars stand up better—and you save on maintenance and repairs as well.

. . .

Today, more than 100,000 freight cars built lighter with U·S·S COR-TEN are in service. Last year alone, more than 19,000 were ordered. We think this record speaks for itself.

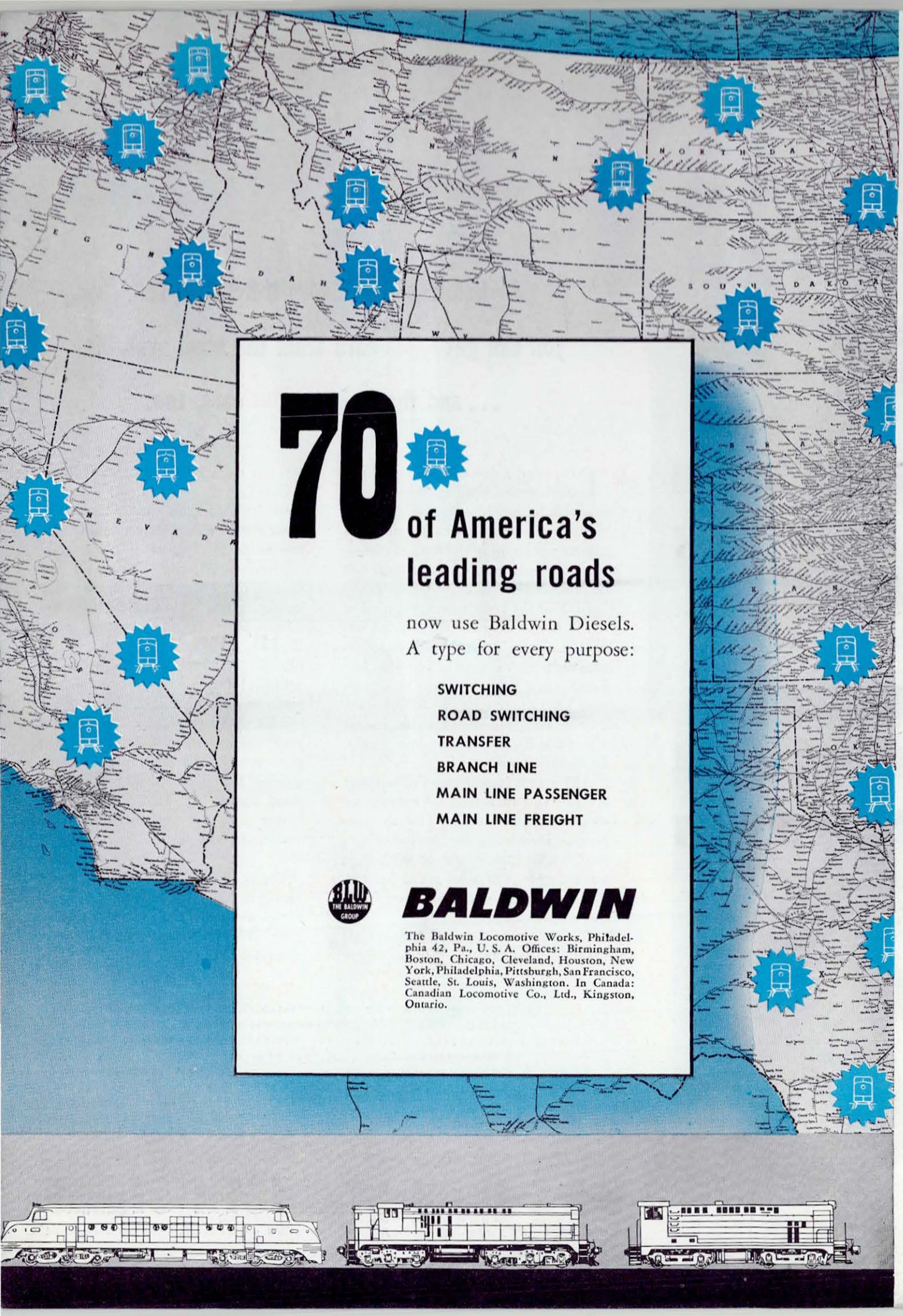
AMERICAN STEEL & WIRE COMPANY, GENERAL OFFICES: CLEVELAND, OHIO
CARNEGIE-ILLINOIS STEEL CORPORATION, PITTSBURGH & CHICAGO
COLUMBIA STEEL COMPANY, SAN FRANCISCO · NATIONAL TUBE COMPANY, PITTSBURGH
TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM
UNITED STATES STEEL SUPPLY COMPANY, WAREHOUSE DISTRIBUTORS, COAST-TO-COAST
UNITED STATES STEEL EXPORT COMPANY NEW YORK

8-1047

U·S·S HIGH STRENGTH STEELS

U·S·S COR-TEN · U·S·S MAN-TEN · U·S·S ABRASION-RESISTING · U·S·S MANGANESE-NICKLE-COPPER

UNITED STATES STEEL



70 of America's leading roads

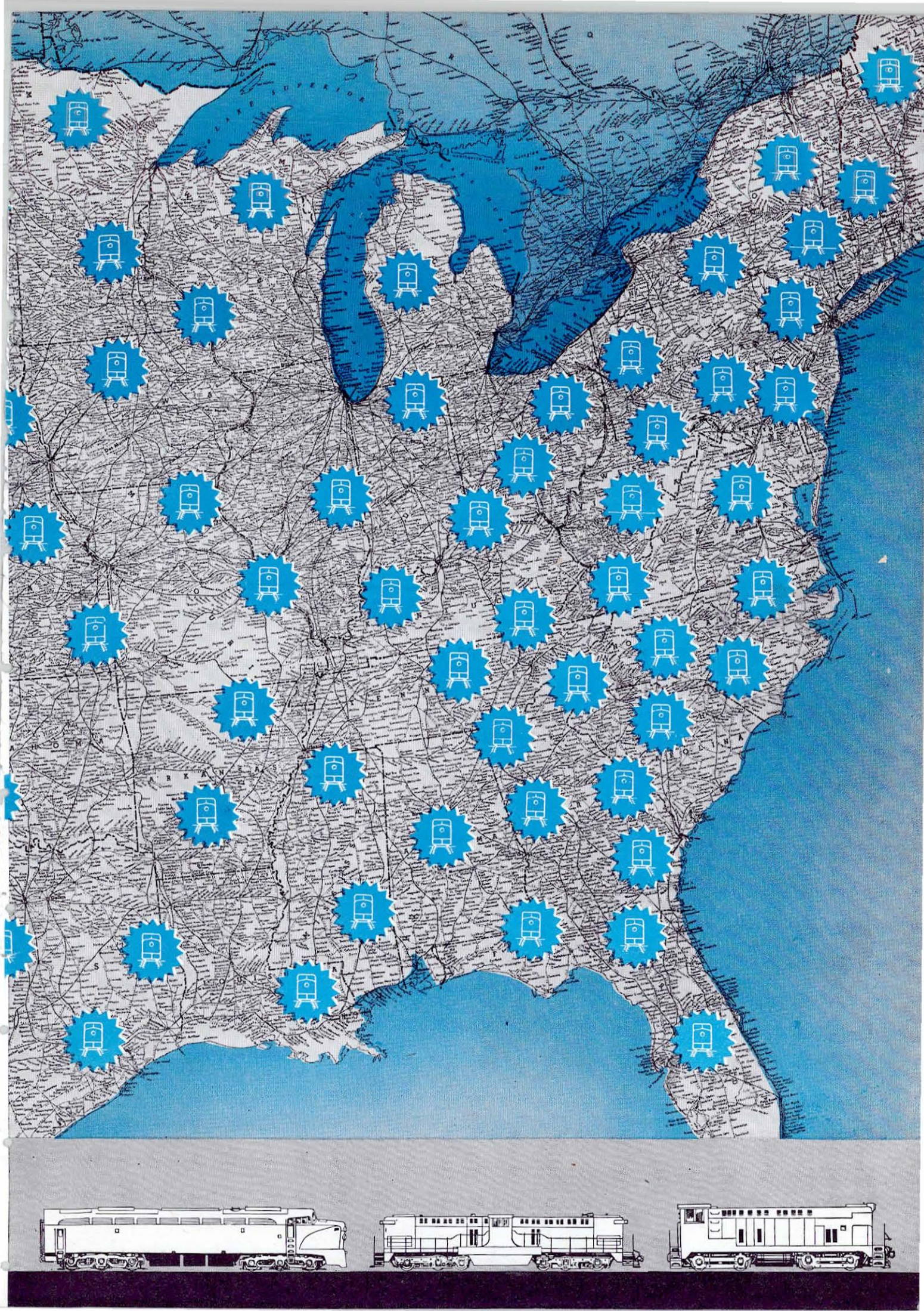
now use Baldwin Diesels.
A type for every purpose:

SWITCHING
ROAD SWITCHING
TRANSFER
BRANCH LINE
MAIN LINE PASSENGER
MAIN LINE FREIGHT

BLW THE BALDWIN GROUP

BALDWIN

The Baldwin Locomotive Works, Philadelphia 42, Pa., U. S. A. Offices: Birmingham, Boston, Chicago, Cleveland, Houston, New York, Philadelphia, Pittsburgh, San Francisco, Seattle, St. Louis, Washington. In Canada: Canadian Locomotive Co., Ltd., Kingston, Ontario.


LAKE SUPERIOR
MICHIGAN
ONTARIO
ARKANSAS
TENNESSEE
OKLAHOMA

Here's why the SKF "SADDLE" MAKES A GOOD BEARING BETTER

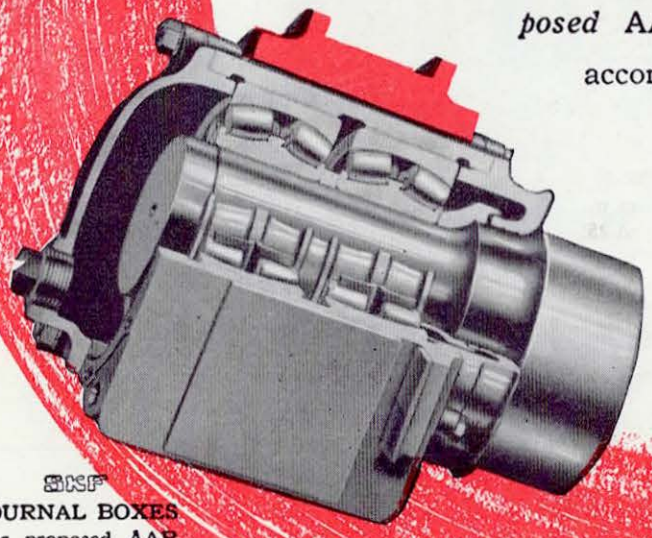
More than 27 years ago, SKF pioneered the anti-friction bearing journal box. Now, SKF introduces a postwar accomplishment—an exclusive new feature—the journal box saddle.

Compared with the conventional type of journal box, the SKF Saddle-Type has proved under test that:

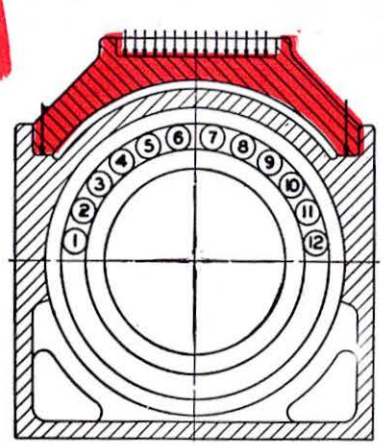
1. *Maximum load per roller reduced by 25%.*
2. *Bearing life increased approximately 33%.*
3. *Load distributed more evenly and uniformly around the whole load zone of the bearing.*

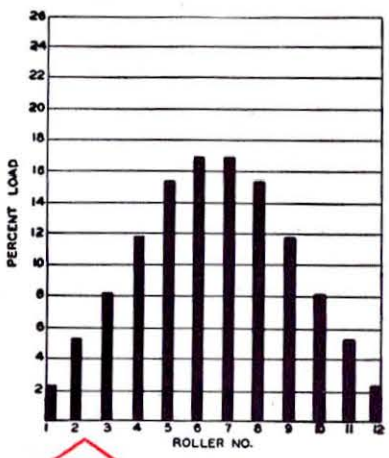
SKF Saddle-Type Journal Boxes meet *present* or *proposed* AAR Standard Pedestal Openings. They accommodate wheel slip devices, train controls, speedometer drives, or speed governors. *Prompt* deliveries. 6400

SKF INDUSTRIES, INC., PHILA. 32, PA.



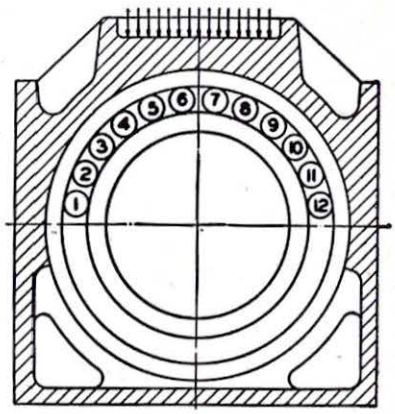
SKF JOURNAL BOXES For proposed AAR Standard Pedestal Openings for Roller Bearings.

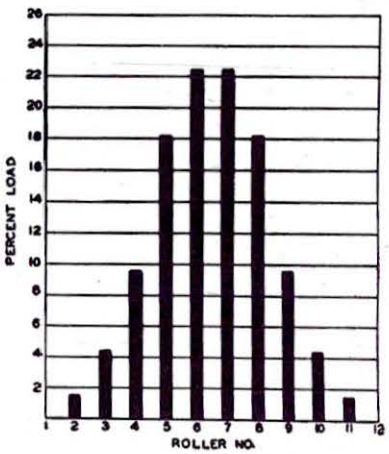




SKF SADDLE-TYPE JOURNAL BOX

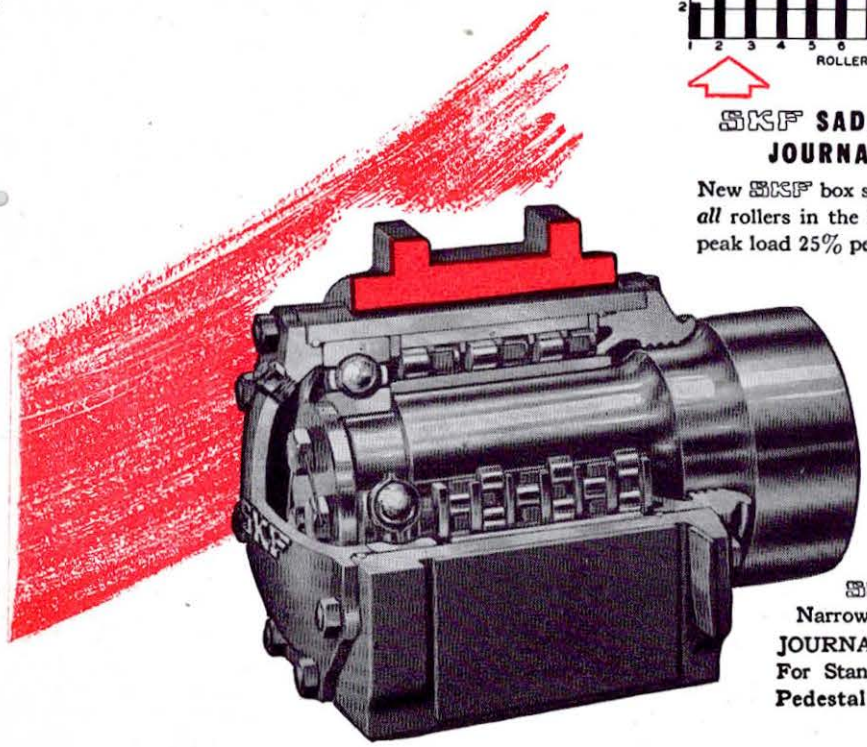
New SKF box spreads loads to *all* rollers in the load zone, cuts peak load 25% per roller.





CONVENTIONAL TYPE JOURNAL BOX

Rollers 5 to 8 carry most of load. Rollers 1 and 12 carry none.



SKF
Narrow Pedestal
JOURNAL BOXES
For Standard AAR
Pedestal Openings.

SKF
JOURNAL BOXES AND BEARINGS

Simple, economical system provides train-wide *Music*

This centrally located panel contains all radios, reproducers and amplifiers for the entire train.

Check these Western Electric advantages

THE Western Electric Program Distribution System was designed specifically for railroad service. It is a *train-wide* system noted for ease of maintenance, dependable service and operating economy. Equipment can be arranged to fit your road's specific requirements.

Here are some of the Western Electric features which have led eight of the nation's leading roads to choose this system in the past year.

√ All reproducing, radio and amplifying equipment is in *one* central location in the train. Total space requirements are minimized, operation and maintenance simplified.

√ Unusually low power consumption. One power conversion unit supplies the entire train.

√ Same system provides train-wide announcing . . . or announcing in each half of the train separately.

√ Multiple loudspeakers, correctly placed and operated at low volume, assure *comfortable* listening for all passengers. These small speakers, easily installed, give true high quality reproduction.

√ With two reproducers and two radio receivers there is a choice of four programs — any three of which are distributed simultaneously for individual selection in each car or private space.

√ High level system is less subject to noise pick-up from other train circuits. Because amplifiers are in central location, noises from train lines and connectors are not amplified.

√ Cars can be cut in or out of train to meet changing traffic conditions without affecting operation in any way.

For the good will of your passengers, provide them with pleasant, relaxing music. For complete information, call your nearest Graybar representative, or write Graybar Electric Co., 420 Lexington Ave., New York 17, N. Y.

Western Electric

— QUALITY COUNTS —

Distributed by GRAYBAR — OFFICES IN 100 PRINCIPAL CITIES

DISTRIBUTORS: IN THE U. S. A.—Graybar Electric Company. IN CANADA AND NEWFOUNDLAND—Northern Electric Company, Ltd.

NEW An All-Steel Scale WITH Outboard Bearings

"IT'S A YALE"

This new Yale Load King Dormant Platform Scale is the result of more than 3 years of improving and redesigning what was to start with one of the most durable, precise instruments on the market—the Kron Scale.

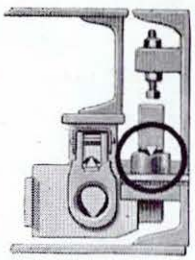
Yale Engineers, applying their knowledge gained by years of experience in designing material handling machinery, have designed a scale that has features not contained in any similar type scale. Most important of which are: all-steel construction, outboard corner support bearings (see detail at right), improved dial mechanism and an overall simplicity of construction; all of which will result in far less maintenance with a substantial increase in scale life.

Send today for Booklet R-TRA. Address: The Yale & Towne Manufacturing Company, 4613 Tacony Street, Phila. 24, Pa.

UNIQUE BEARING CONSTRUCTION GIVES YOU THESE MONEY-SAVING ADVANTAGES

As you can see by the diagram below, it is impossible for the platform to tilt because all corner support bearings are *outside* the "live" platform area, assuring accurate weighing on any part of the full-floating platform. There can be no tipping action no matter where loads are placed on the platform.

Excessive wear on pivots and bearings is eliminated. There can be no sliding motion of the pivots. Shock loads do not destroy their accuracy. And, because the lever system is welded steel, breakage under such loads is impossible.



The resultant advantages to you are:

1. **Prolonged scale accuracy.**
2. **Lowest possible maintenance costs.**
3. **Increased scale life.**
4. **No time lost due to tie-ups for repairs.**

RAILWAY REPRESENTATIVES:

CHICAGO 1, ILL.
The Earl E. Thulin Co.
Suite 339, Hotel Sherman

ST. PAUL 4, MINN.
Robert J. Wylie
2300 University Ave.

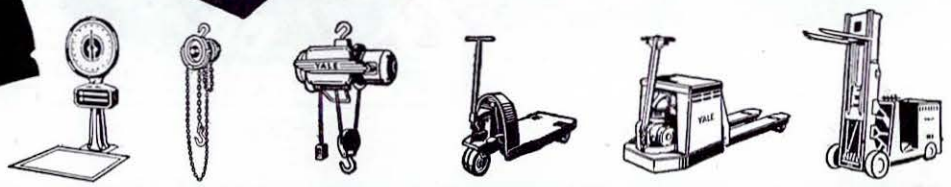
ST. LOUIS 1, MO.
Clarence Gush
Railway Exchange Bldg.

NEW YORK 17, N. Y.
Eastern Railway Supplies, Inc.
110 East 42nd Street

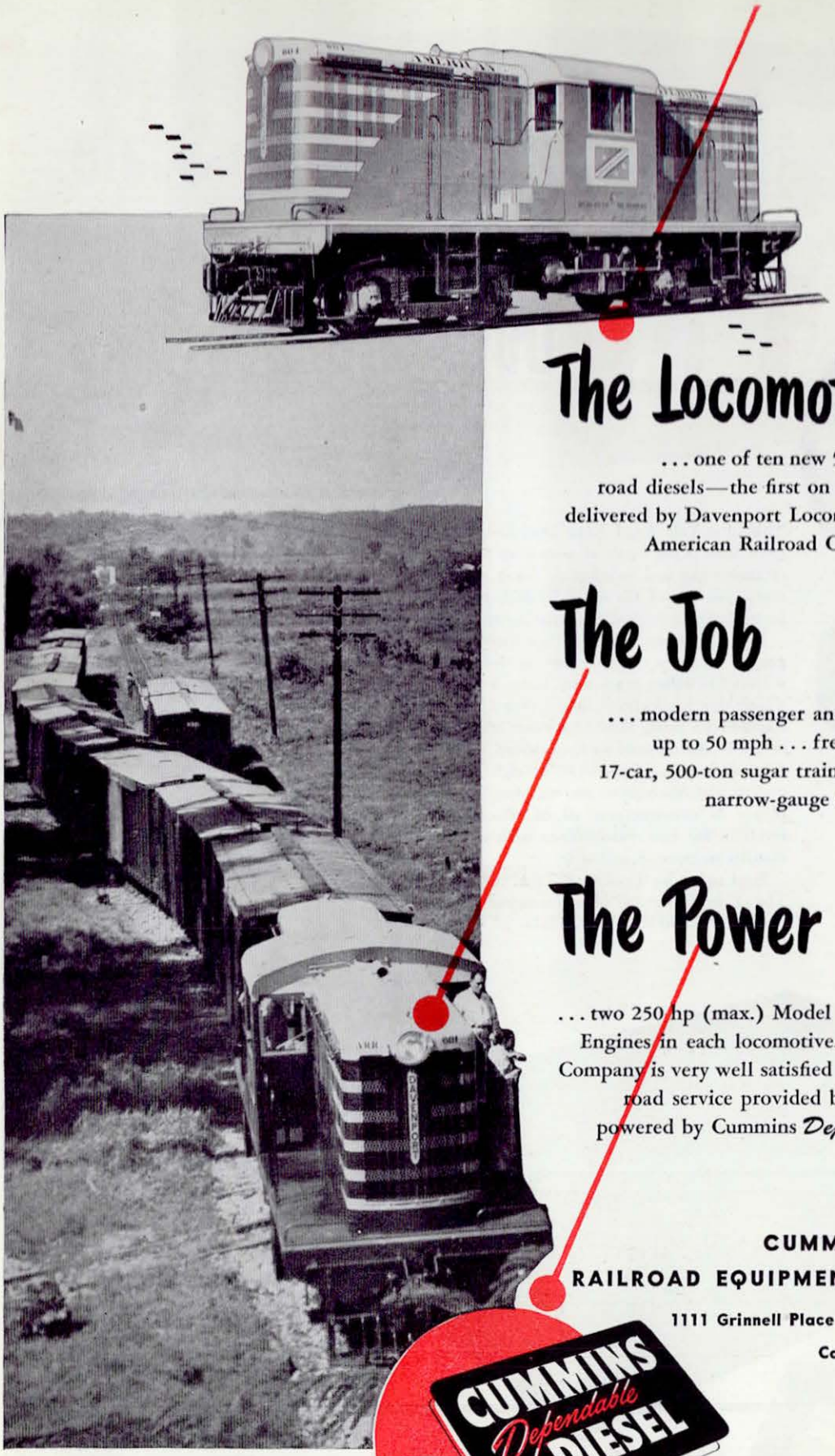
CLEVELAND 15, OHIO
C. E. Murphy
923 Midland Bldg.

WASHINGTON 5, D. C.
Ralph W. Payne
Metropolitan Bank Bldg.

YALE



INDUSTRIAL DIAL SCALES • HOISTS—HAND AND ELECTRIC • TRUCKS—HAND LIFT AND ELECTRIC



The Locomotive

. . . one of ten new 500 hp, 46-ton road diesels—the first on the island—delivered by Davenport Locomotive Works to American Railroad Company of Puerto Rico.

The Job

. . . modern passenger and mail service at speeds up to 50 mph . . . freight hauls—such as 17-car, 500-ton sugar trains . . . good tonnage for narrow-gauge track.

The Power

. . . two 250 hp (max.) Model LI-600 Cummins Diesel Engines in each locomotive. American Railroad Company is very well satisfied with the excellent road service provided by its new locomotives, powered by Cummins *Dependable* Diesels.

CUMMINS DIESEL
RAILROAD EQUIPMENT COMPANY, INC.

1111 Grinnell Place • New York 59, New York

Cable Address: MOTORTRAIN

CUMMINS *Dependable* DIESEL

SINCE 1918...PIONEER OF PROFITABLE POWER THROUGH HIGH SPEED DIESELS

Promise becomes Performance

On the following pages are reproduced two Budd advertisements published in the Saturday Evening Post, Time, Newsweek and Holiday.

They appeared about two years apart. Notice that 1946's "Glimpse of Coming Travel Magic" had to be illustrated by drawings. But "Coach for a Queen" has *photographs.*

In many ways the promised Utopia of the "post-war era," to which people looked forward so yearningly during the grim war years, has proved a bitter illusion. But not so with railroading. And Budd is proud to participate and take the initiative in fulfilling those promises—and telling people about it. The Budd Company, Phila. 32.

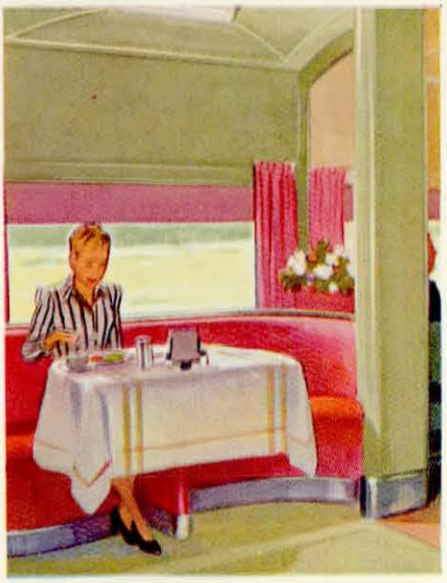
Budd

GLIMPSE OF COMING TRAVEL MAGIC

Yesterday

● Beautiful, roomy women's lounge of a Budd-designed sleeper-coach

● Budd Reclining-Chair sleeper coach—air-conditioned, fluorescent lighted



● Luxurious post-war dining car of refreshing new design, Budd created

● The Budgette—your low priced, completely equipped, private room

● You will enjoy all the scenery—in the Budd-Built Dome Car

Glistening new stainless steel trains, designed and built by Budd, are taking form now—in all their new beauty and luxury—replete with modern, post-war ideas for your safety and pleasure.

New "One class" trains offering comforts and conveniences, at economy fares, that no price could have bought before the war.

Sleeping accommodations of entirely new design for your privacy and enjoyment, whether traveling alone, with your family, or in a business group.

Diners, lounges, observation cars which bring to your travel all the niceties of gracious living.

These new trains are building now. Watch for them as they take an honored place with the famous stainless fleets on the nation's foremost railroads. New Budd trains will be serving you this year.

Budd

PHILADELPHIA DETROIT

Originators of stainless steel, lightweight trains, ALLSTEEL auto bodies, stainless steel highway truck trailers and marine structures. Inventors of the SHOTWELD* system of fabricating hi-tensile steel.*

Reg. U.S. Pat. Off.

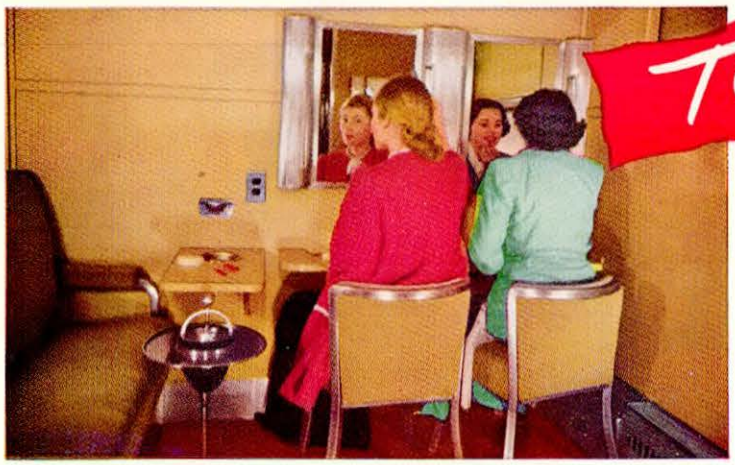
This is the sleeper-coach, popularized by Budd for economical, long-distance travel. Notice your individual, reclining chair with its upholstered leg-rest and adjustable foot rail.

Coach for a Queen

• These are photographs, not "artists conceptions," of the luxurious travel accommodations you can enjoy in the all-coach trains that are built by Budd. Never has this economical form of transportation afforded so much pleasure. To provide their passengers the finest, railroads pay a premium to obtain Budd all-stainless steel cars. Yet it costs you not a penny extra to ride in them. When planning a vacation trip, find out whether you can go on a Budd-built train, just as business men regularly do. Write for the new booklet—"To Vacation Lands in Trains of Stainless Steel"—which lists the railroads and famous name-trains which feature Budd all-stainless steel equipment. The Budd Company, Philadelphia 32.

Budd

Today



The women's lounge on a Budd all-stainless steel coach is as beautiful and well-appointed as any boudoir, and probably much better lighted. Men's lounges are equally spacious, comfortable and complete.

Budd builds a variety of diners to meet the needs of its railroad customers. One type, for example, has the entire car devoted to dining space. Illustrated is a lunch-counter-diner of the Santa Fe's El Capitan.

Among the feature cars you find in Budd all-coach trains are beautiful tavern-lounge observation cars like this one on the New York Central's popular Pacemaker. All Budd cars have picture windows with non-glare glass.

Inside the dome of a Vista-Dome car of the Burlington's Twin Cities Zephyrs. You ride above the roof level with unrestricted view in all directions. Perfect air conditioning provides comfort on the hottest days.

"HERE'S THE BEST LIGHTING JOB I'VE EVER SEEN"...

LINKING 13 GREAT STATES WITH THE NATION

B&O

That's what engineers of many of the nation's leading railroads are saying about Keystone modern lighting. Shown above is one of eight modernized B & O cars—typical of those which cause such favorable comment. Notice how much the single, continuous line of Keystone fixtures running centrally along the ceiling lends the finishing touch.

Tests taken throughout this B & O car prove that not only is the aisle provided with soft, glareless illumination of adequate intensity, but also both aisle and window seats are comfortable . . . eye-easing.

Important, too, is the tempered glass of which these fixtures are made. Should any accident occur, it will not break into dangerous slivers. Instead, only small, comparatively harmless particles will form.

When modernizing your old cars contact Electric Service. We are ready to provide you with the right fixture—fluorescent or incandescent—for any location. Write for detailed information.

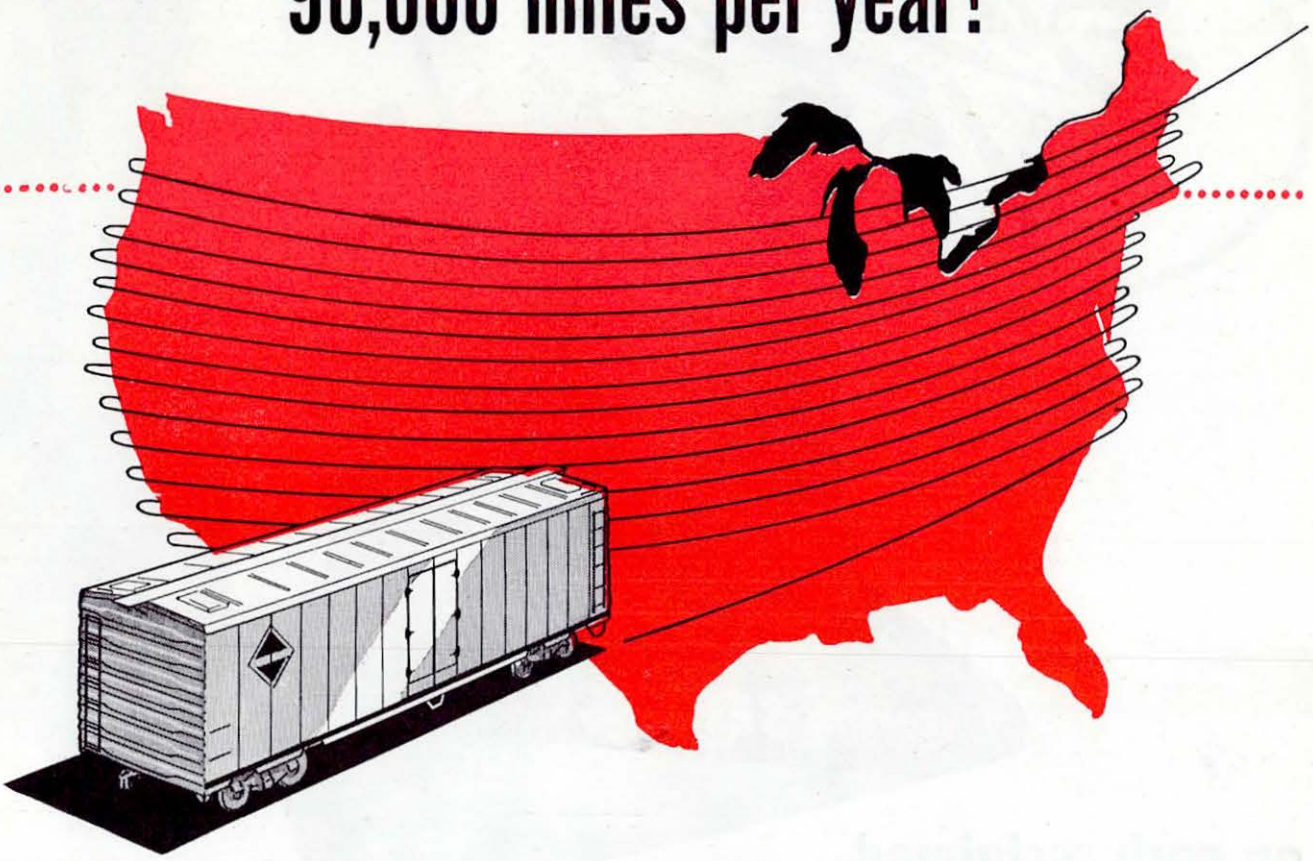
ELECTRIC SERVICE MANUFACTURING CO.

Keystone

LIGHTING · LIGHTNING ARRESTERS · HEADLIGHTS · UNIVERSAL COLLECTORS · SHOP TOOLS · SHELVING

17th & CAMBRIA STS. • PHILA. 32 • PA. • *Branches in Principal Cities*

SOME DAY...YOUR REEFERS WILL TRAVEL 90,000 miles per year!



AND ALCOA ALUMINUM CARS WILL PAY EVEN BIGGER DIVIDENDS

More high-speed locomotives, more efficient refrigeration, promise that your refrigerator cars will soon be crossing the continent *28 times a year*.

When they do, you'll collect still bigger dividends from your investment in Alcoa Aluminum.

But right now—on the basis of 50,000 miles a year—a standard reefer built of Alcoa Aluminum can save you more than $468.00 a year—equal to a 15% return on an investment of $3,120.00.

The difference in cost of material for aluminum and that for heavy cars is $3,000 to $3,500. Labor costs in quantity production should be no greater for aluminum cars.

Use your own ton-mile cost and mileage records to figure your savings. Add the money you'll save in maintenance to see how much more you can earn with refrigerator cars built of Alcoa Aluminum. Alcoa development engineers will be glad to work out designs with you or your car builder. ALUMINUM COMPANY OF AMERICA, 2178 Gulf Bldg., Pittsburgh 19, Pa.

ALCOA FIRST IN ALUMINUM®

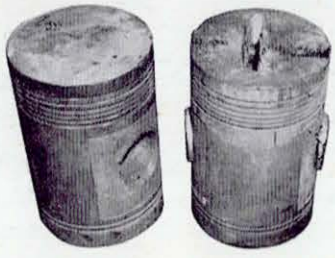
ALCOA ALUMINUM 1888 1948 60 YEARS OF SERVICE

Saved $155.00 . . .

on each reclaimed

Diesel Aluminum Piston

A large western railroad faced the problem of replacing cracked aluminum piston heads on their diesel-electric locomotives. An Airco Railroad Representative was called in . . . he suggested reclamation by welding, using the following method:



First, the piston head is cleaned by soaking in a carbon solvent, and the crack chipped out. The piston is preheated with the oxy-acetylene flame to about 350°. Then, with the Airco No. 57 Electrode in the ¼" size, and crowding the arc well up on the side, quick passes are made in the crack. As each pass is completed, the deposit is chipped and slag carefully removed. When the weld is made, the piston is covered and allowed to cool slowly. Distortion stays within permissible limits.

This easy and quick method makes pistons good as new . . . and costs about $15 per reclaimed piston. Compare this with the standard outlay of $170 for a new piston!

For more information about oxy-acetylene flame and electric arc applications see:"Oxyacetylene Flame Processes and Arc Welding in Railroad Mechanical Operations." If you would like a free copy of this 44-page, illustrated booklet, address: Dept. RA-8359, Air Reduction, 60 East 42nd Street, New York 17, N. Y. In Texas: Magnolia Airco Gas Products, Houston 1, Texas. On West Coast: Air Reduction Pacific Company, San Francisco 4, California.

Costs Come Down Under the Airco Plan

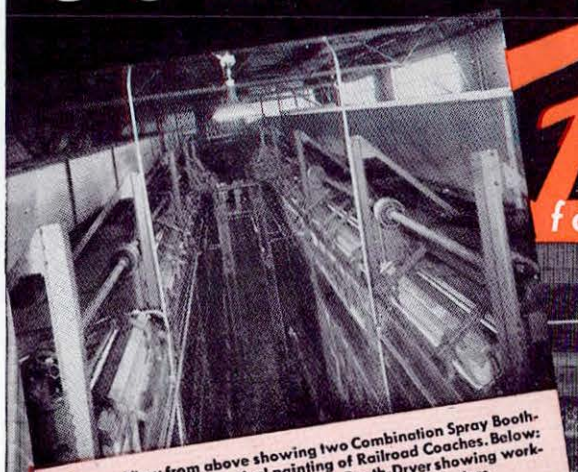
AIRCO **AIR REDUCTION**

Offices in All Principal Cities

Headquarters for Oxygen, Acetylene and other Gases . . . Carbide . . . Gas Welding and Cutting Machines, Apparatus and Supplies . . . Arc Welders, Electrodes and Accessories

COMPLETE *Finishing* SYSTEMS

for ENAMEL • LACQUER • PAINT



Above: View from above showing two Combination Spray Booth-Dryers for rapid economical painting of Railroad Coaches. Below: Interior of Mahon Combination Spray Booth-Dryer showing workmen spraying on Electrically Operated Scaffold-Elevators.

The finish on your product will take on a greater importance in the near future when the gap between supply and demand narrows down into a buyer's market. Now is the time to safeguard future sales volume by installing modern Finishing Equipment. Regardless of what your product is—railroad coaches, buses, automobiles, refrigerators, stoves, washers or the smallest radio cabinet—the Mahon organization stands ready to plan, engineer, build and install complete ultramodern equipment to handle your cleaning, rust proofing, drying, painting and baking operations efficiently and economically. Mahon Finishing Systems are in operation all over the world . . . twenty-seven years of experience and pioneering development, in this highly specialized field, have endowed Mahon engineers with a wealth of technical knowledge and practical know-how not available elsewhere. See Mahon's Insert in Sweet's Mechanical Industries File, or arrange consultation with Mahon engineers.

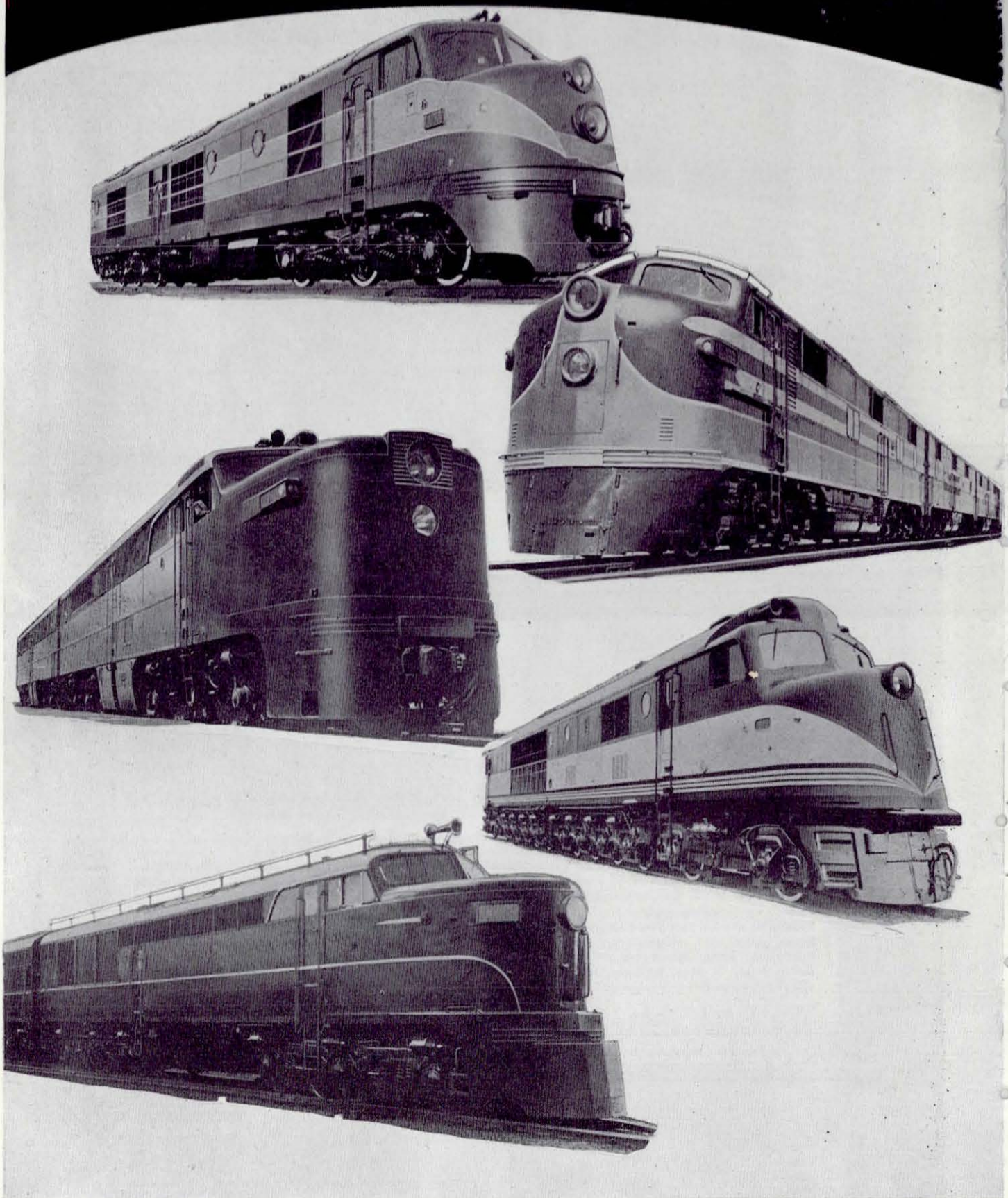
THE R. C. MAHON COMPANY

HOME OFFICE and PLANT Detroit 11, Michigan • WESTERN SALES DIVISION, Chicago 4, Illinois

Engineers and Manufacturers of Complete Finishing Systems and Many Other Units of Special Production Equipment

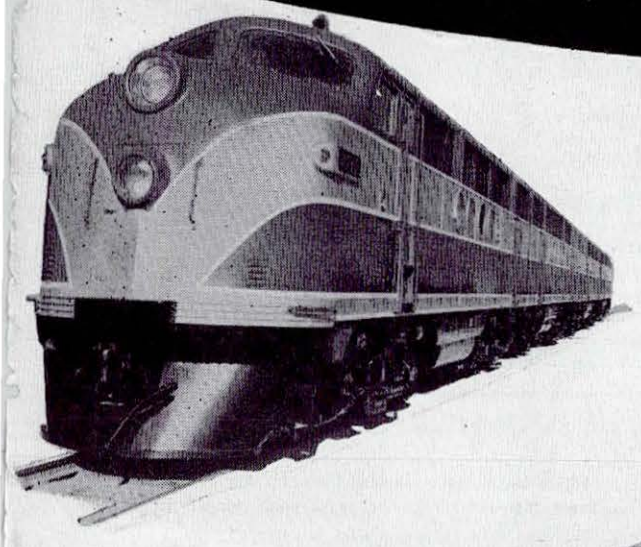
MAHON

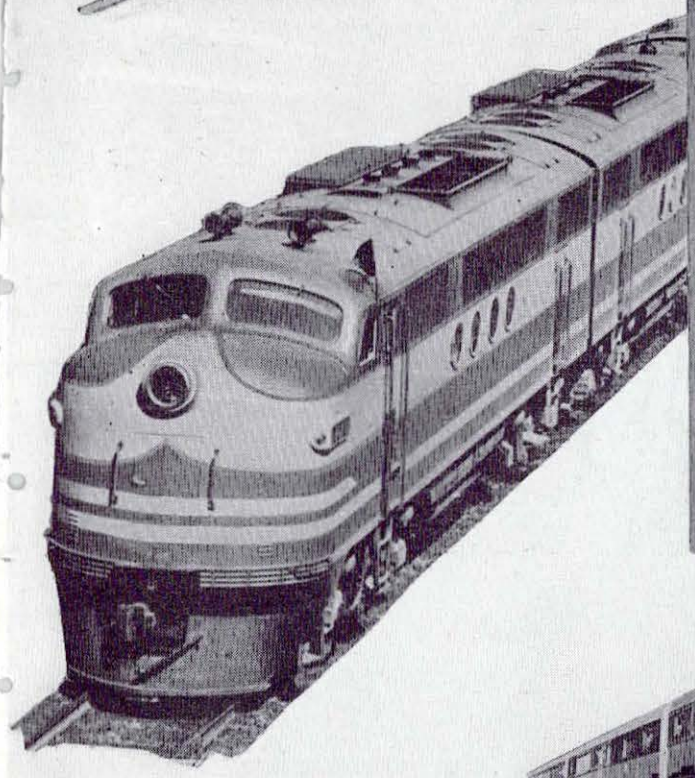
DIESEL LOCOMOTIVE



OPERATION RECORDER

for Diesel-Electric Road Power





The Diesel Locomotive Operation Recorder is designed to minimize traction motor overloading, excessive heating and subsequent failure.

The tape record shows all movements of the transition lever, of the throttle, of the reverse lever, all changes of speed and provides evidence of the factors which led to traction motor failures.

The Diesel Locomotive Operation Recorder guides enginemen and raises the standard of engineman and locomotive operation.

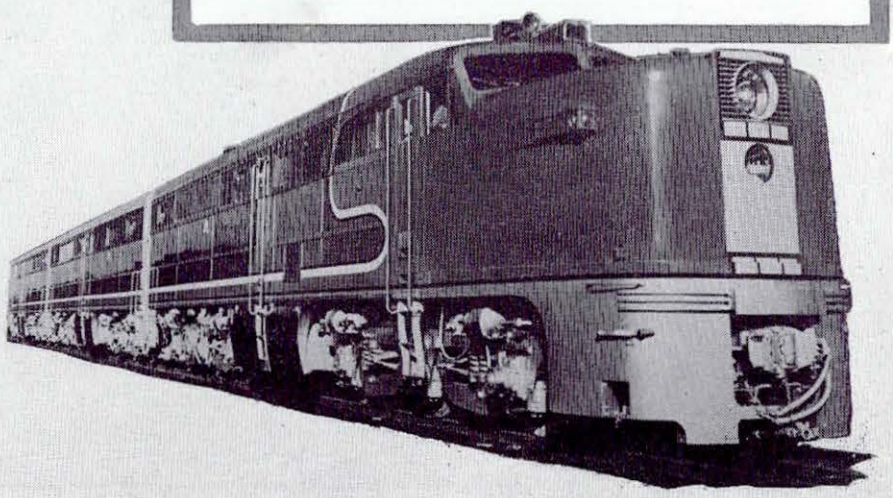
It is accurate, dependable, compact and rugged and can be designed and fitted for use on various types of Diesel-Electric Power.

It can be furnished with any combination of recordings including throttle, reverse lever, transition, dynamic braking, automatic train control, speed and others.

Full particulars will be sent on request.

Patents Pending

VALVE PILOT CORPORATION
230 PARK AVENUE NEW YORK 17, N. Y.



..SERVING..BY Saving

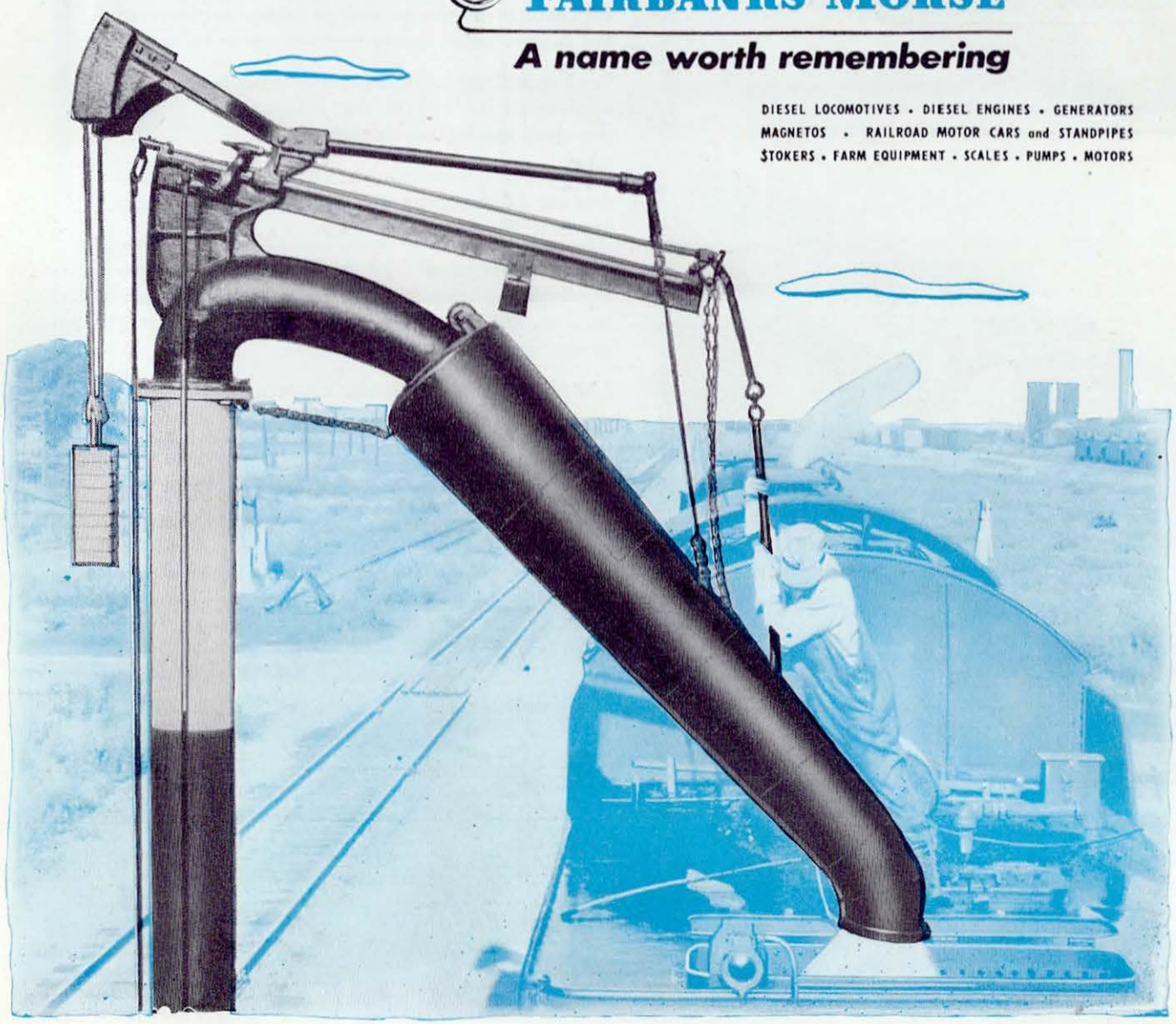
Fairbanks-Morse, today as in the past, is serving the railroads of the nation with a long line of railroad equipment designed and built by men who have "grown up with the roads"—equipment that saves time, manpower and maintenance dollars wherever it is used.

That's why Fairbanks-Morse is a primary source for oil and water standpipes, coal and sanding stations for diesel and steam locomotives, cinder conveyors, railroad scales, pumps, motor cars—and other primary equipment. Fairbanks, Morse & Co., Chicago 5, Ill.

FAIRBANKS-MORSE

A name worth remembering

DIESEL LOCOMOTIVES • DIESEL ENGINES • GENERATORS
MAGNETOS • RAILROAD MOTOR CARS and STANDPIPES
STOKERS • FARM EQUIPMENT • SCALES • PUMPS • MOTORS



GOOD IN 1935

New designs gave coach travel of the '30's at least the appearance of comfort.

BEST TODAY

Today's new coaches provide through-trip comfort *to match their luxurious appointments. Shown below is the Heywood-Wakefield "Sleepy Hollow" Seat No. 820 installed in the new B & O "Cincinnatian."*

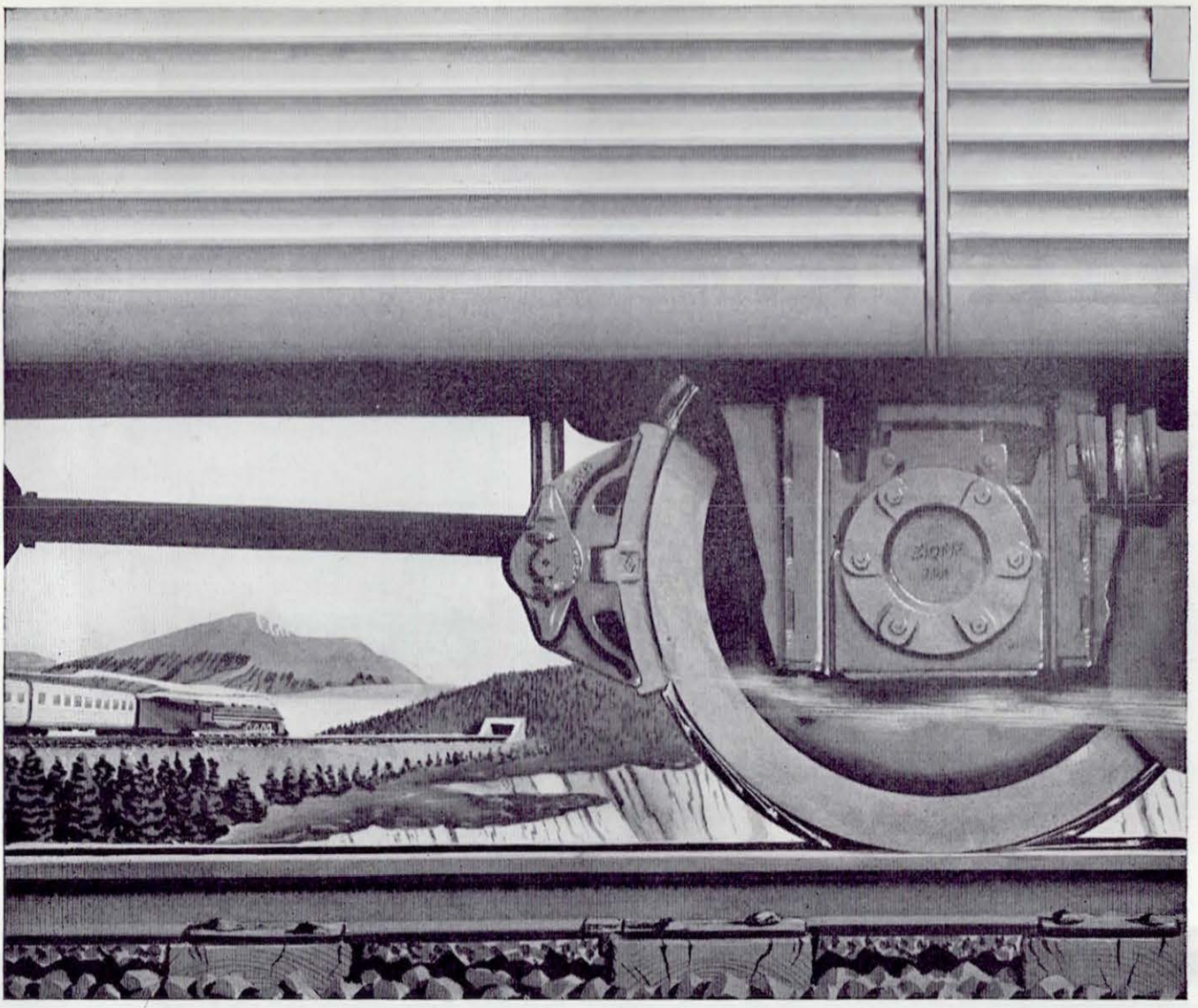
B & O Follows the Swing To "Sleepy Hollow" Comfort

"Sleepy Hollow" design is exclusive with Heywood-Wakefield. It is based on a new, *scientific* approach to greater comfort. That's the fundamental reason why Heywood-Wakefield "Sleepy Hollow" seats are proving so satisfactory to the progressive railroads which now have them in service.

Alterations in finish, fabric and in details of outward appearance can be arranged to harmonize with the design and decor of your new equipment.

HEYWOOD-WAKEFIELD
EST. 1826
REG. U. S. PAT. OFF.

Transportation Seating Division
Gardner, Massachusetts



Long brake drags "make it hot" for wheels

Long, steady brake applications on heavy mountain grades are just as tough on a railroad wheel as quick stops from high speeds.

Exhaustive tests in the ARMCO Wheel-Testing Laboratories show that wheel stresses build up faster under continuous braking because the tremendous heat developed has a longer time to penetrate the entire rim.

Hundreds of tests like these have enabled ARMCO wheel specialists to study the behavior of standard and special analysis wheels under practically all types of conditions. In a specially developed testing machine, wheels are subjected to far more punishing treatment than they would receive in actual service. Some are run to destruction to discover what happened—and why.

Much of the knowledge gained from ARMCO Research is reflected in wrought steel wheels designed to meet the ever-increasing severity of modern railroad service. This research, coupled with Armco's long experience in making wheels, helps assure you of top performance from ARMCO Wrought Steel Wheels.

If you have any problems involving unusual operating conditions, we shall be glad to work with your staff in determining the right wheel for the job.

For complete information on ARMCO Wrought Steel Wheels, just get in touch with our nearest district office or write Armco Steel Corporation, 337 Curtis Street, Middletown, Ohio. Export: The Armco International Corporation.

ARMCO WROUGHT STEEL WHEELS

ARMCO

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HEYWOOD-WAKEFIELD
EST. 1826
REG. U. S. PAT. OFF.

Transportation Seating Division
Gardner, Massachusetts

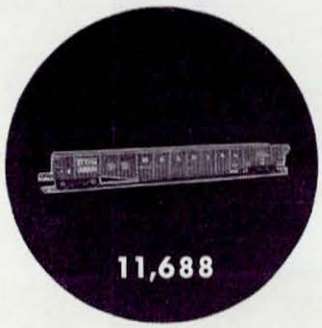
BOX CARS

80,070 CARS OF ALL TYPES ARE CARRYING LADING AND

HOPPERS

BOX CARS • HOPPER CARS • GONDOLA CARS • REFRIGERATOR CARS
CABOOSE CARS • CEMENT CARS • TANK CARS • STOCK CARS • TANK
BOX CARS • HOUSE CARS • FURNITURE
CARS • PASSENGER-MILK CARS
BOX CARS • REFRIGERATOR CARS
CABOOSE CARS • TANK CARS • TANK
BOX CARS • HOUSE CARS • EXPRESS CARS • FLAT CARS • FURNITURE
CARS • HIGH SPEED PASSENGER CARS • PASSENGER-MILK CARS

GONDOLAS



THEY'RE

OTHER TYPES

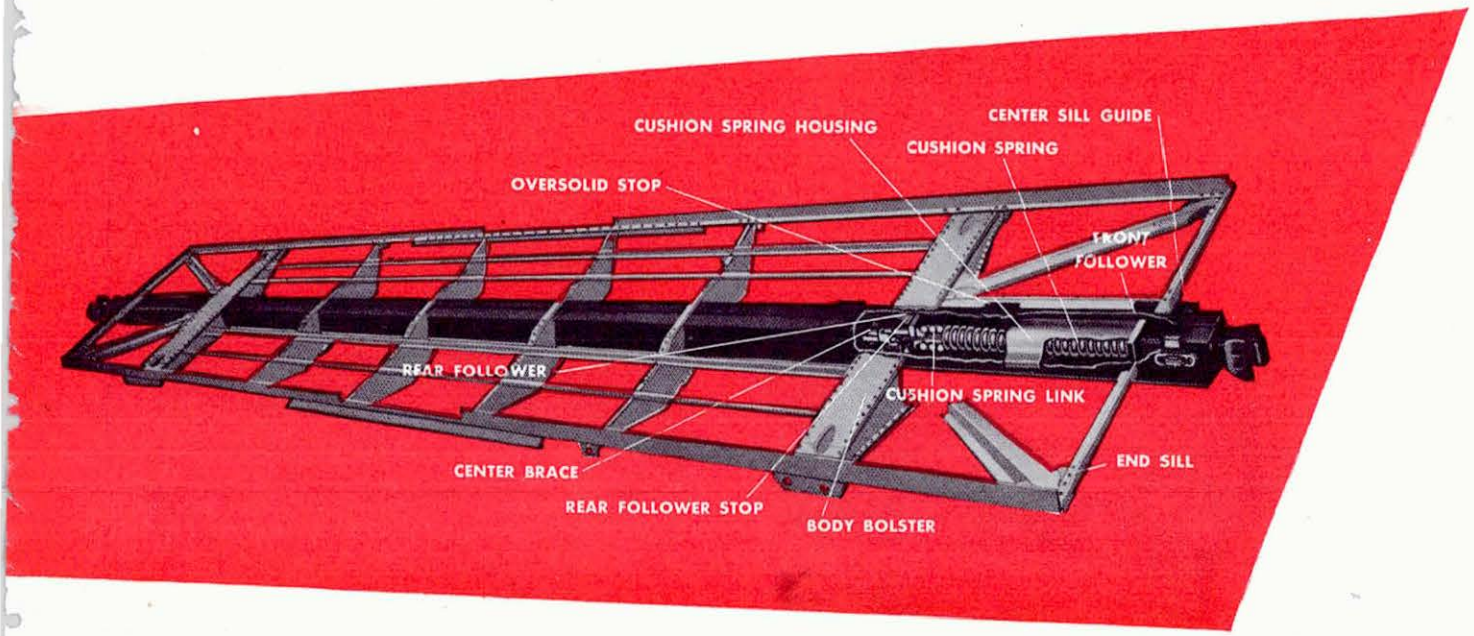
CAR OPERATORS USING DURYEA UNDERFRAME

ATCHISON, TOPEKA & SANTA FE
BALTIMORE & OHIO
BOSTON & MAINE
BESSEMER & LAKE ERIE
CHICAGO GREAT WESTERN
CHICAGO & NORTHWESTERN
CHICAGO, ROCK ISLAND & PACIFIC
CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA
CHESAPEAKE & OHIO
CENTRAL RAILROAD OF NEW JERSEY
CENTRAL RAILROAD OF PENNSYLVANIA
CHICAGO & EASTERN ILLINOIS
DENVER & RIO GRANDE WESTERN
GENERAL AMERICAN TRANSPORTATION CORPORATION
GULF REFINING COMPANY
HIGH POINT, THOMASVILLE & DENTON
ILLINOIS CENTRAL
IRON MINES COMPANY OF VENEQUELA
LINDE AIR PRODUCTS COMPANY
LEHIGH VALLEY
LEHIGH & NEW ENGLAND
LEHIGH & HUDSON
MISSOURI PACIFIC
MAINE CENTRAL
NEW YORK CENTRAL
NORFOLK & WESTERN
PERE MARQUETTE
PENN CONLEY TANK CAR CO.
PITTSBURGH & WEST VIRGINIA
PENNSYLVANIA
READING
ST. LOUIS & SAN FRANCISCO
UNITED STATES ARMY
UNITED STATES NAVY
UNITED STATES WAR DEPT.
VISCOSE COMPANY
WESTERN MARYLAND
YOUNGSTOWN SHEET & TUBE

O. C. DURYEA CORPORATION

FIELD BLDG., CHICAGO 3, ILL.

TRAIN CREWS MORE SAFELY WITH ADDED PROTECTION!



PROTECTED BY THE DURYEA CUSHION UNDERFRAME

The added protection afforded lading is a result of a major engineering achievement in the design of cushioning devices.

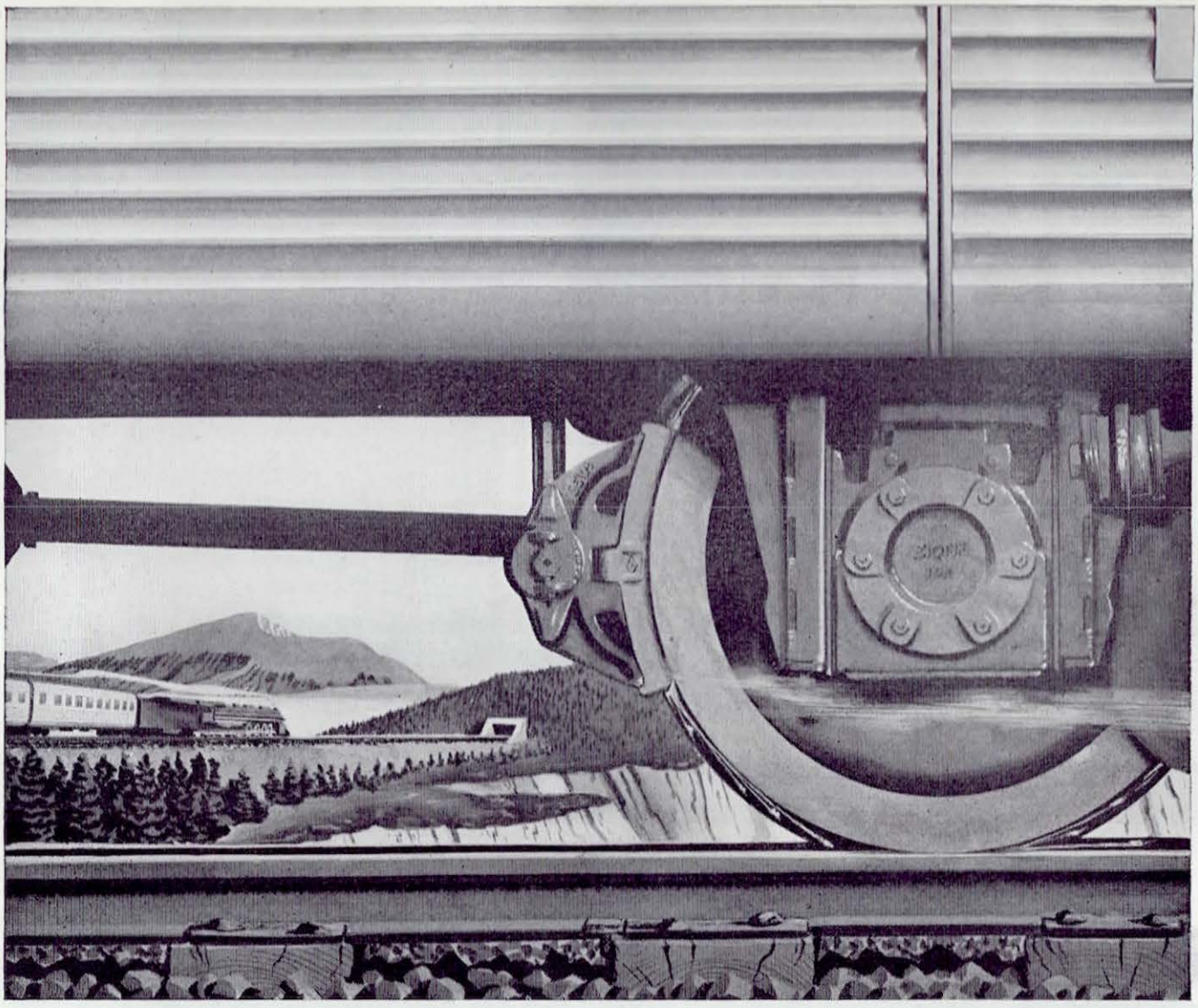
When a moving car impacts the coupler on one end of a Duryea Cushion Gear car, the coupler and follower move ¾″, compressing the cushion spring by a like amount. This movement is independent of any movement of the center sill. After this movement has taken place, the follower makes contact with the cushion spring housing. This housing is essentially an integral part of the center sill. If the energy of impact is sufficient to compress the cushion spring further, the center sill and its associated parts then start to move through the underframe and it can continue to move up to its full travel of 7″—a much greater distance than with other types of cushioning devices—at which point the oversolid stops make contact with the body bolsters and prevent any further sill movement or compression of the cushion springs.

At the end of the car opposite to that at which the impact takes place, the rear draft lugs, rear follower and gag washers compress the cushion spring against the restraint furnished by cushion spring link. Regardless of the direction of movement of the sill, the cushion springs at both ends of a car become active and both are always placed in compression. The 7″ movement of center sill and compression of cushion springs result in increased energy dissipation with a reduction in force imparted to car and lading. The low force, an exclusive feature of the long travel Duryea Cushion Gear, provides greater protection to the car and its contents.

DURYEA CUSHION UNDERFRAME

THE MODERN SAFEGUARD FOR SHOCKPROOF SHIPPING

FOR FREIGHT CARS



Long brake drags "make it hot" for wheels

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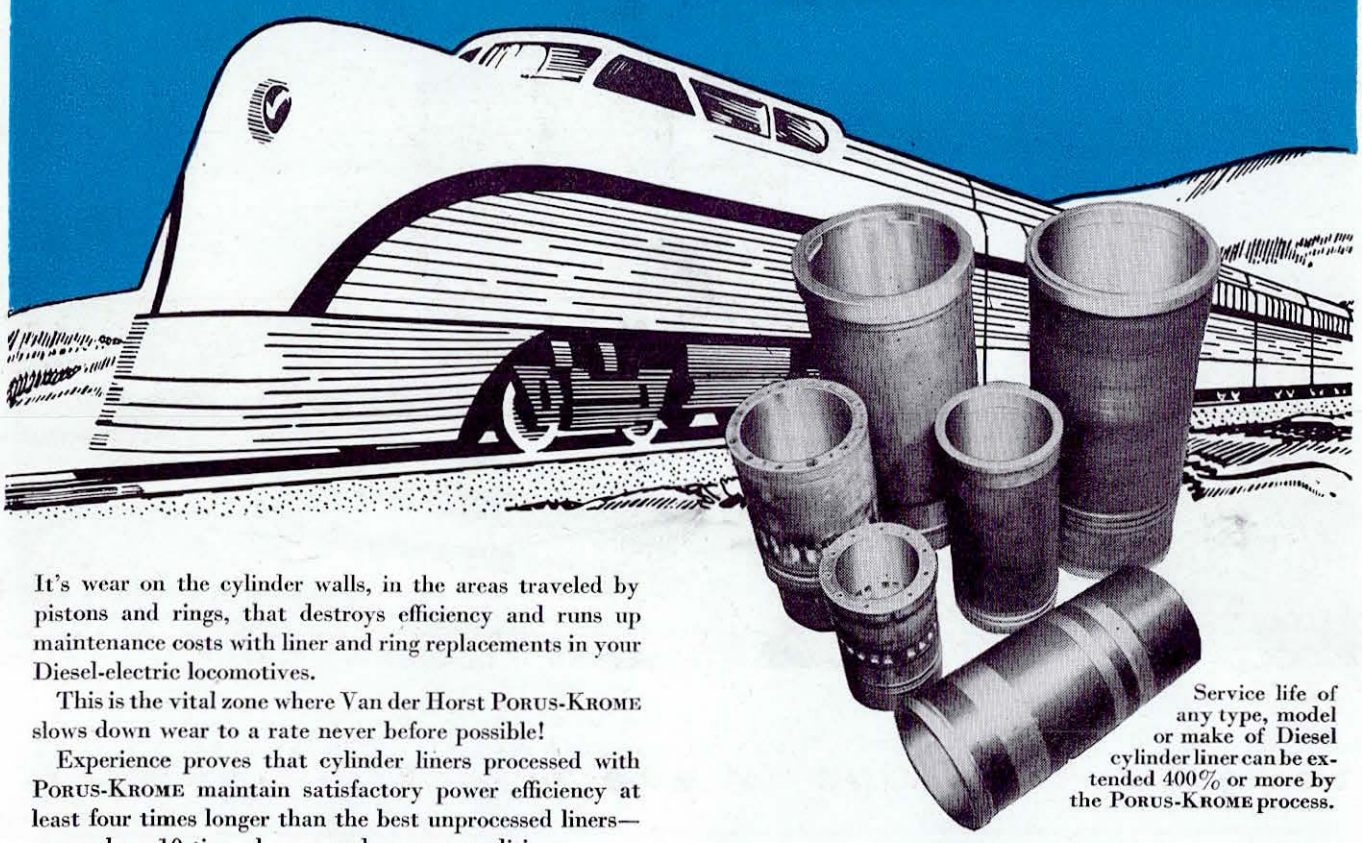
For complete information on ARMCO Wrought Steel Wheels, just get in touch with our nearest district office or write Armco Steel Corporation, 337 Curtis Street, Middletown, Ohio. Export: The Armco International Corporation.

ARMCO WROUGHT STEEL WHEELS

ARMCO

PORUS-KROME* saves wear

where wear costs most!



It's wear on the cylinder walls, in the areas traveled by pistons and rings, that destroys efficiency and runs up maintenance costs with liner and ring replacements in your Diesel-electric locomotives.

This is the vital zone where Van der Horst PORUS-KROME slows down wear to a rate never before possible!

Experience proves that cylinder liners processed with PORUS-KROME maintain satisfactory power efficiency at least four times longer than the best unprocessed liners—as much as 10 times longer under some conditions.

Rings last longer, too, and damage from scuffing, scoring and piston seizure is eliminated or minimized. With less wear on rings and cylinder walls, oil consumption stays low much longer.

If the need arises, liners may be economically reprocessed and brought back to original bore. *You eliminate the extra stores expense of maintaining stocks of oversize liners, rings and pistons!*

When you buy either replacement liners or new Diesels, make sure of reduced maintenance costs and improved reliability—specify cylinder liners processed with Van der Horst PORUS-KROME. Write today for names of Diesel builders who furnish PORUS-KROME as standard equipment.

Service life of any type, model or make of Diesel cylinder liner can be extended 400% or more by the PORUS-KROME process.

• • •

*PORUS-KROME is dense, hard, wear and corrosion-resistant chromium applied by the exclusive Van der Horst process which gives working surfaces an infinite number of tiny oil-retaining reservoirs for perfected lubrication.

VAN DER HORST CORPORATION OF AMERICA · OLEAN, N. Y.

PORUS - KROME

Good for the Life of your Engines

VAN DER HORST TRADE MARK

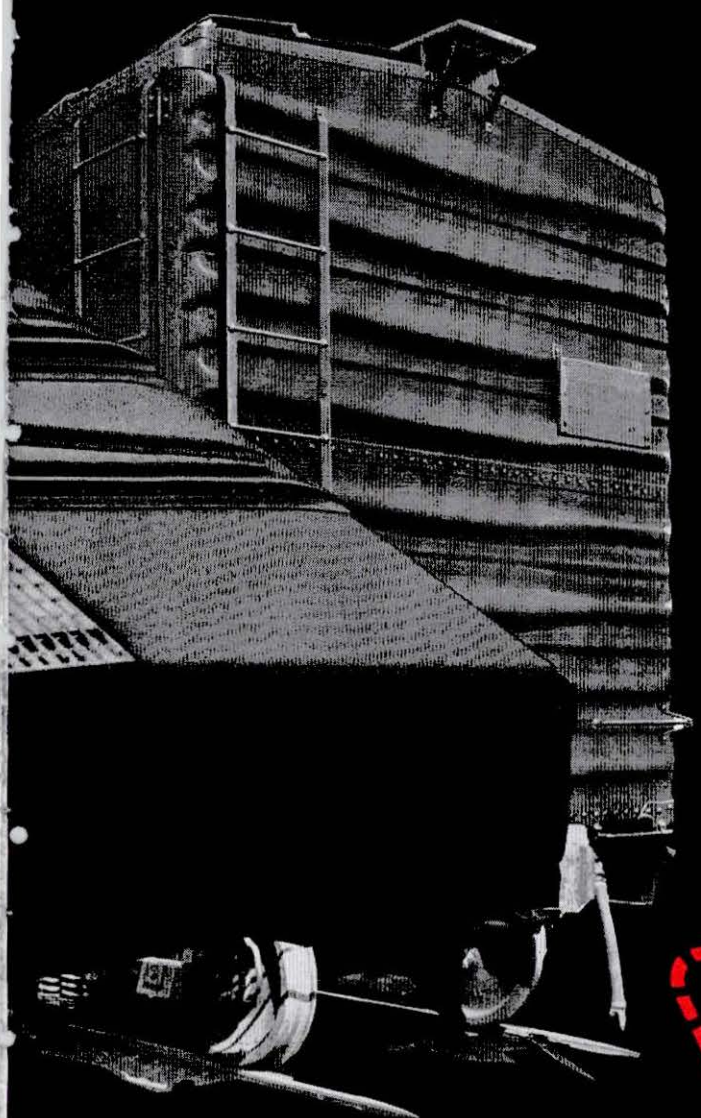
U.S. PATENTS 2,048,575, 2,314,604 AND 2,412,698

STANDARD RAILWAY

Here's why "Standard" sells MORE

STANDARD RAILWAY EQUIPMENT SELLS MORE — *FAR* MORE — FREIGHT CAR ROOFS AND ENDS THAN ANY OTHER MANUFACTURER *because YOU demand the best!* You demand and get . . .

- ***MINIMUM WEIGHT***
- ***GREATER STRENGTH***
- ***Constant* IMPROVEMENT**



The new "STANDARD" Diagonal Panel Roof illustrated, is designed to give the greatest possible strength from *light* metal. Lighter, 20% stronger for equal weight than *any* previous design, "twist-resistant." A "STANDARD" improvement.

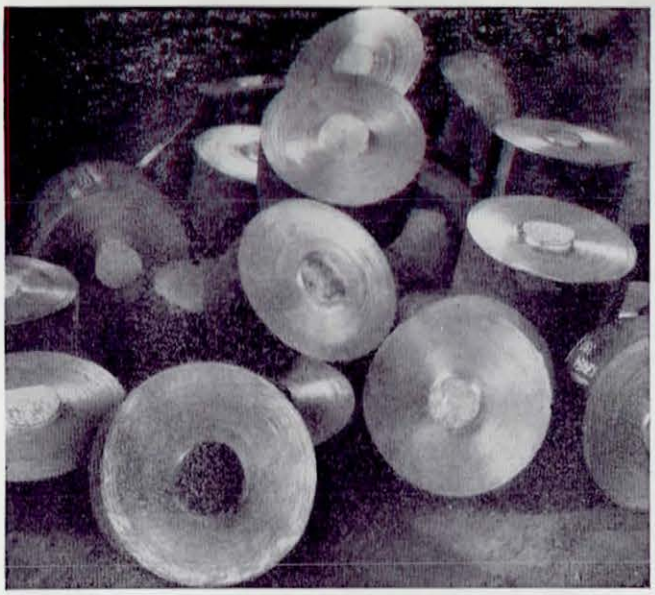
The new "STANDARD" Improved Dreadnaught End features four-inch deep major corrugations that terminate *around* the corner posts. Minor corrugations run the *full width* of the car. "W" section posts, corner-post restraint, elimination of hinge action—all *increase* strength, *decrease* weight requirements. Another "STANDARD" improvement.

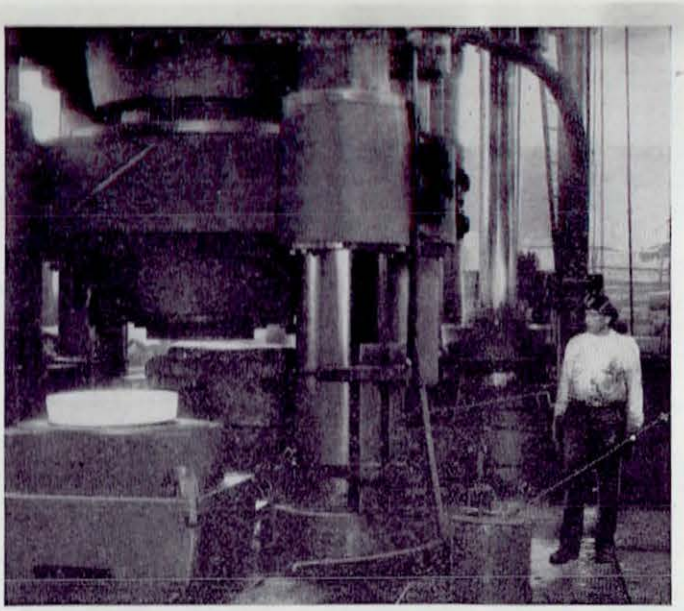
310 S. MICHIGAN AVENUE - - - - CHICAGO 4

247 PARK AVENUE - - - - NEW YORK 17

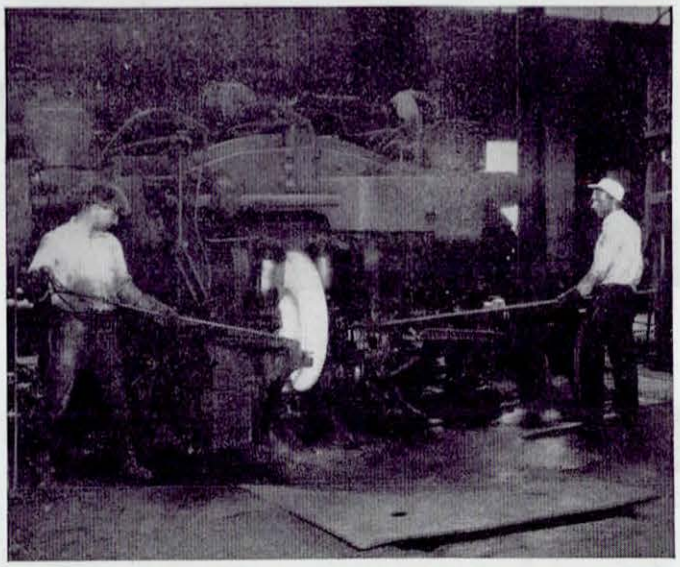
PLANTS: Hammond, Ind., New Kensington, Pa.

EQUIPMENT MFG. CO.





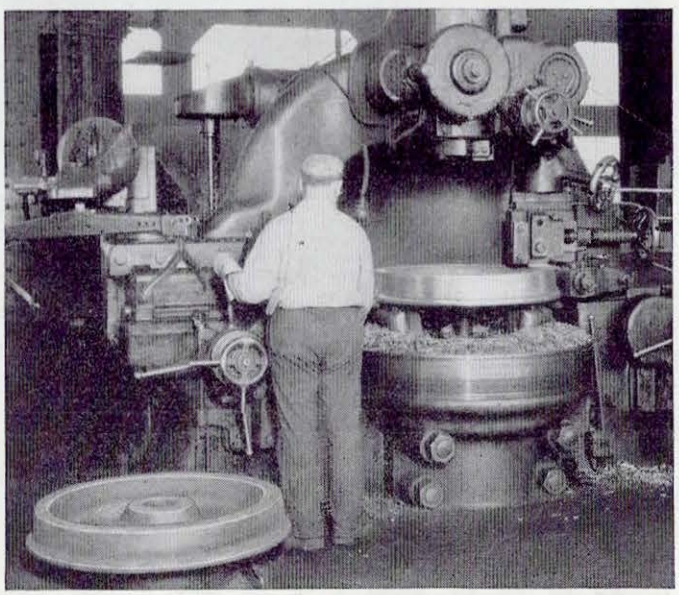
A Good Wheel is the Sum of Many Things



No one thing makes a good wheel. It is the sum-total of many things, of many operations carefully integrated.

Fine steel is, of course, fundamental. But the fine steel must be forged expertly, rolled and machined by men who know their jobs every step of the way. The strictest metallurgical controls must be faithfully maintained. There can be no such thing as an "easy" inspector.

By these or any other standards, Bethlehem wrought-steel wheels are *good* wheels — as fine as you can buy anywhere. For many years they have proved their worth on passenger cars, freight cars, and locomotives the country over.



BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

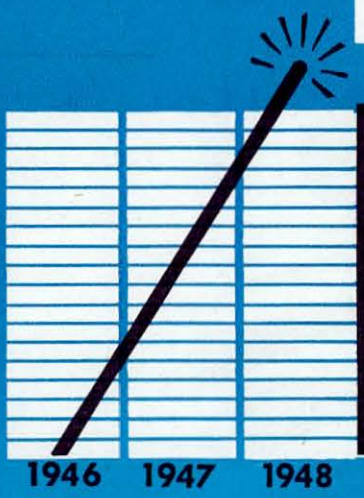
On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

★ BETHLEHEM STEEL ★

BETHLEHEM WROUGHT-STEEL WHEELS and FORGED-STEEL AXLES

there has to be one

BEST way!



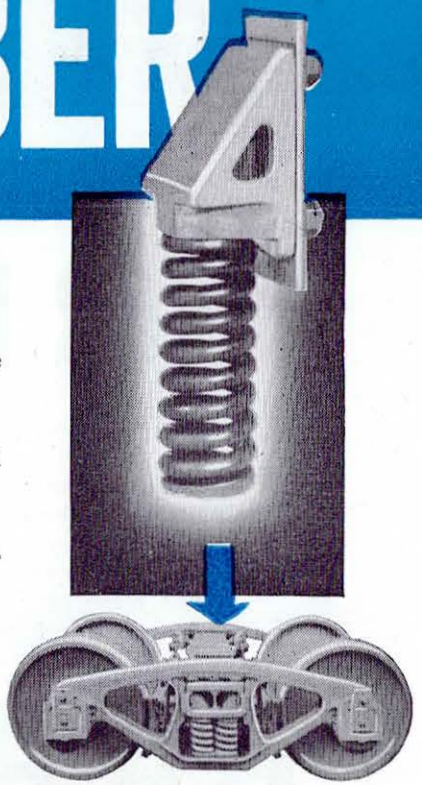
50,000 Sets Ordered in 1947

190,000 Sets Ordered to Date

. . . Yet Replacements are Almost Nil!

. . . and more and MORE and MORE men say it's

BARBER



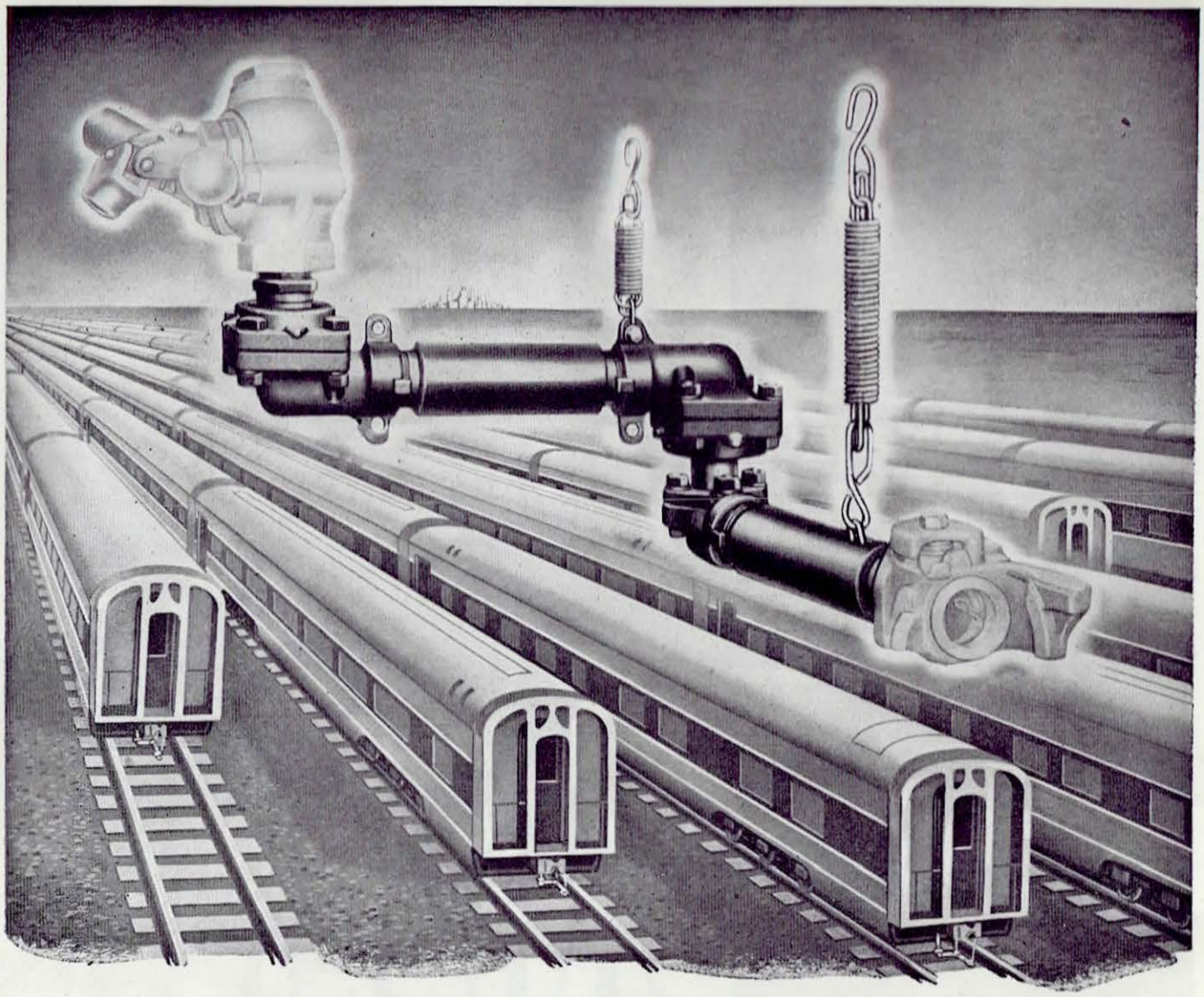
Because

1. Special alloy-iron friction castings with 35 square inches of friction-bearing surface.
2. Spring-steel wear plates securely bolted or welded to the column.
3. Friction-casting-supporting side-spring with a minimum ¾-inch initial compression.

GET *that easier ride . . . GET that reduction in damage claims —GET that easy maintenance the other Barber Owners get!*

B-2860

STANDARD CAR TRUCK COMPANY
332 SOUTH MICHIGAN AVENUE, CHICAGO, ILLINOIS



BARCO Steam Heat Connections

NEVER FAIL OR BLOW OUT

Not even under the most severe conditions will Barco Steam Heat Connections fail or blow out. They can always be trusted to maintain maximum steam supply and to keep down maintenance costs.

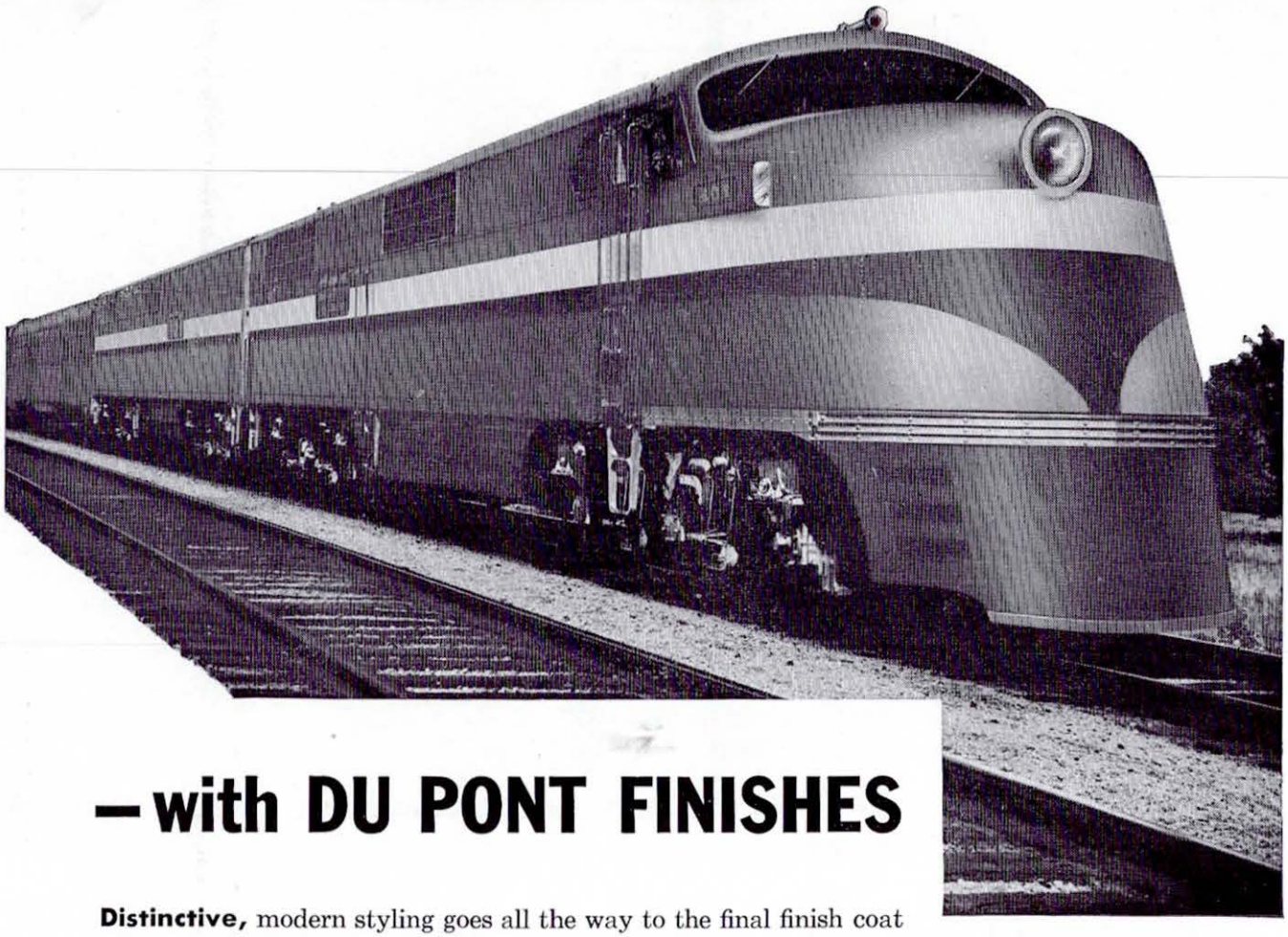
Because Barco has 50% fewer joints, gaskets, springs and wearing parts, any necessary repairs can be made swiftly and conveniently. The lightweight connections need no dismantling when applied or removed from end valve, and many parts of all connections are interchangeable, thereby reducing funds tied up in protective stock.

BARCO MANUFACTURING COMPANY

Free Enterprise—The Cornerstone of American Prosperity

1800 WINNEMAC AVENUE, CHICAGO 40, ILLINOIS • *IN CANADA:* THE HOLDEN CO., LTD., MONTREAL, CAN.

America's smartest trains keep their "new look" longer



—with DU PONT FINISHES

Distinctive, modern styling goes all the way to the final finish coat with today's sleek railroad giants . . . an essential reason why many of the industry's leading operators pick Du Pont "Duco" and "Dulux" Railroad Finishes. Critical eyes everywhere attest to the superlative beauty of these Du Pont finishes . . . and performance records show that, for standing off merciless exposure and rough handling, they admit no superior.

On locomotives, freight cars, passenger cars, and other equipment . . . for exteriors and interiors alike . . ."Duco" or "Dulux" saves tangible dollars by its down-to-earth toughness and durability, in spite of smoke, cinders, fumes, bad weather and hard knocks.

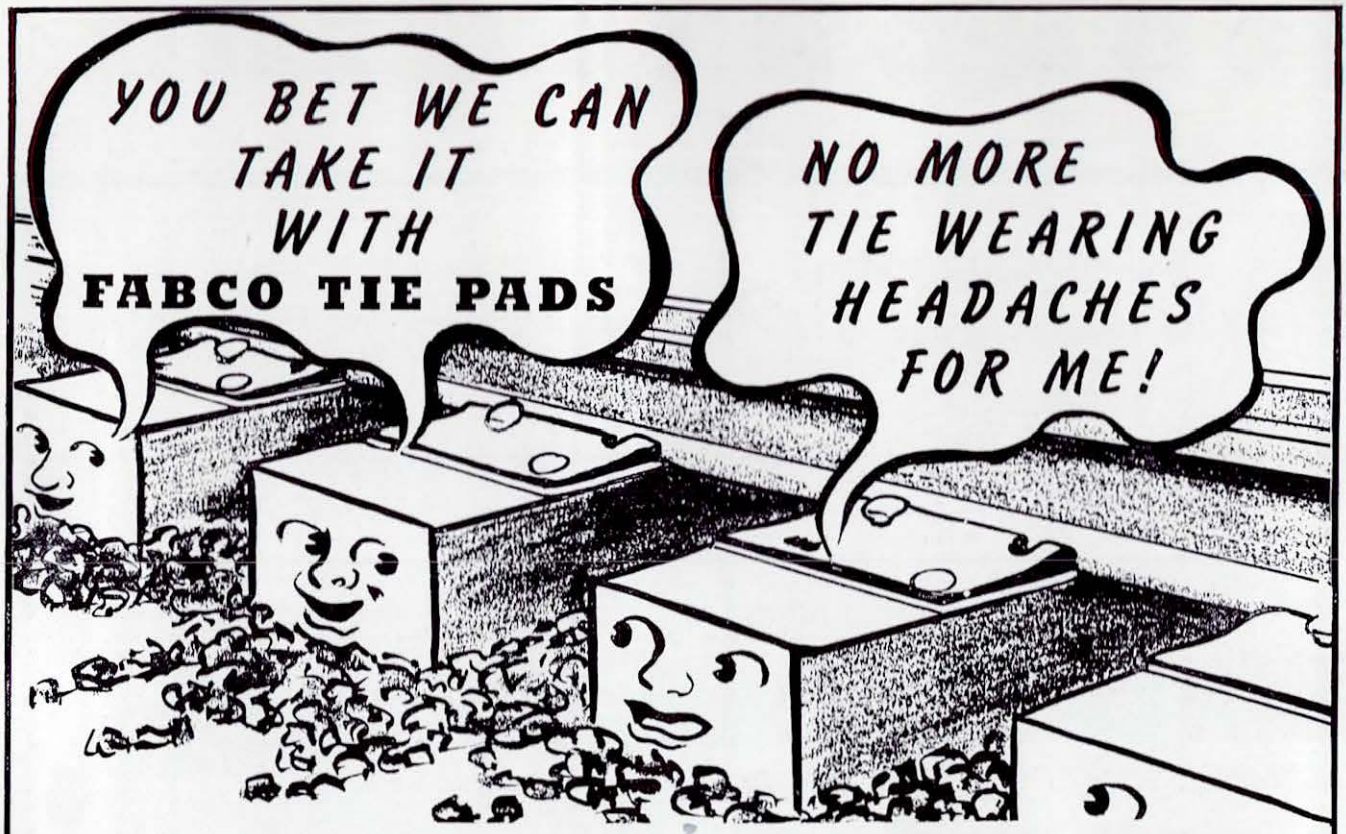
Month after month, Du Pont assures you outstanding appearance ...*that lasts*. For evidence, take a look at some of the crack, tomorrow-styled trains that are in operation now!

E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Wilmington 98, Delaware.

DU PONT
REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
. . . *THROUGH CHEMISTRY*

DUCO and DULUX RAILROAD FINISHES
REG. U. S. PAT. OFF. REG. U. S. PAT. OFF.



Now We Can Keep Our NEW LOOK with FABCO TIE PADS

After seven years of intensive development, FABCO Tie Pads to reduce the mechanical wear of ties in Open Track were made available in January of this year . . . at prices which definitely help reduce the final cost of the ties.

FABCO Tie Pads for Open Track are stocked in 1/4" thickness, in standard tie plate sizes: 7 3/4" x 12"; 7 3/4" x 13"; 7 3/4" x 14"; with other sizes available on special order. They withstand extremes of temperature, moisture, brine, mildew and sand . . . and their limited resiliency, without permanent set, means that spikes do not have to be driven down a second and third time.

- **Prevent Wear of Ties**
- **Resilient — no set — no loose spikes**
- **Long Life — no renewals required**

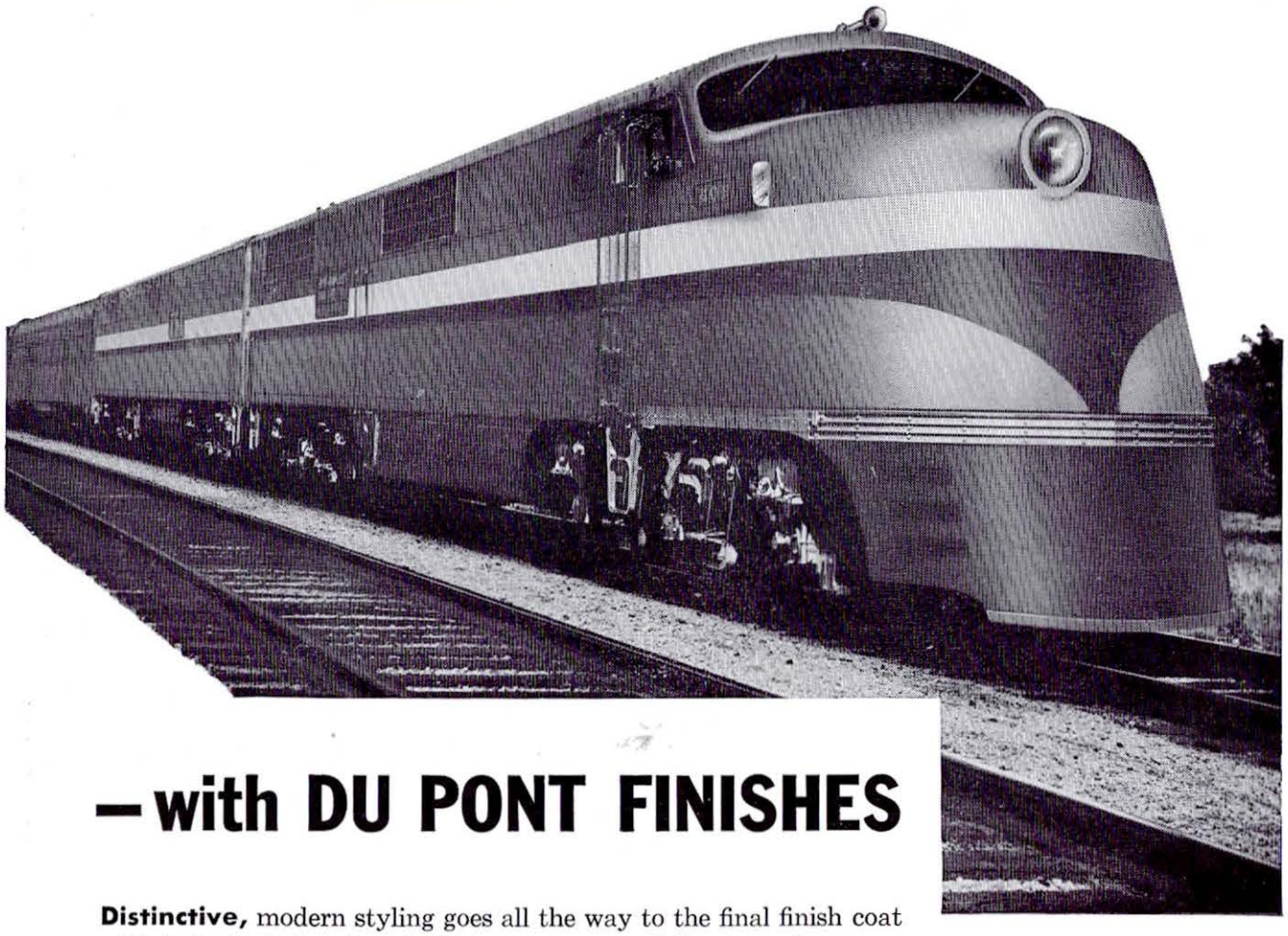
Get the facts about FABCO Tie Pads Today!

FABCO TIE PADS
Made by
The Makers of Fabreeka

FABREEKA PRODUCTS COMPANY Incorporated

222M Summer Street • Boston 10, Massachusetts

America's smartest trains keep their *"new look"* longer



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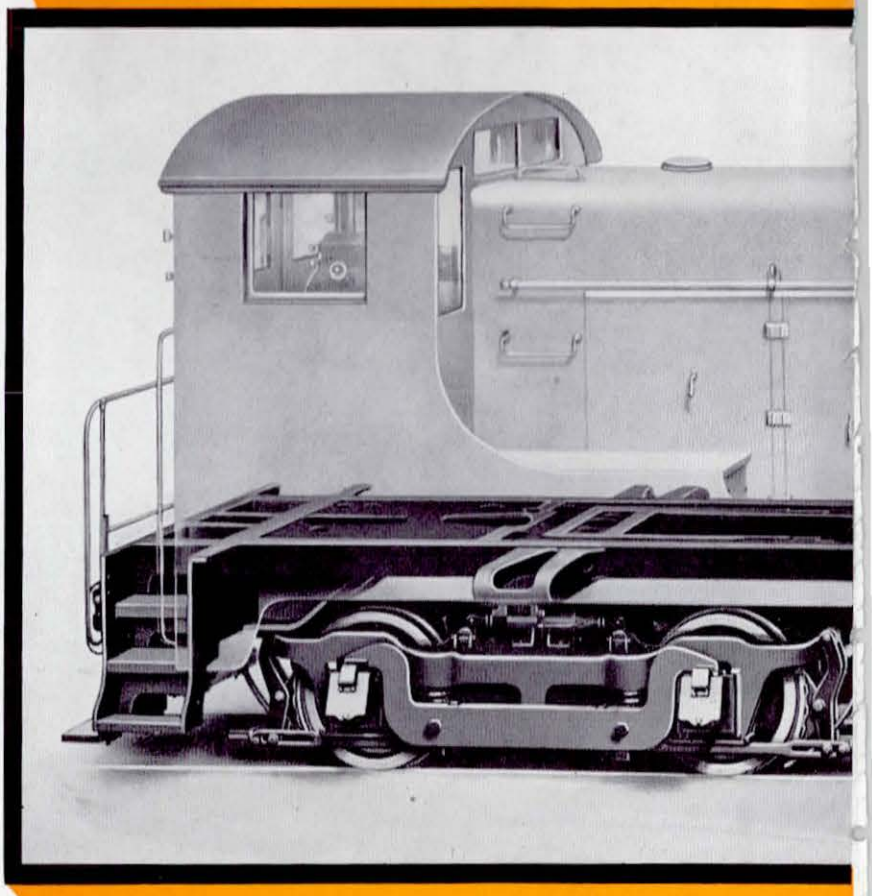
FOR LONG RANGE

One-piece, cast steel, COMMONWEALTH UNDERFRAMES are furnished completely machined and ready for assembly, thus permitting increased locomotive output. Great strength is provided to withstand the severe shocks of switching service. The rugged construction is valuable insurance against damage to the power plant through accidents.

MOTOR TRUCKS have COMMONWEALTH One-Piece Cast Steel Frames with integral pedestals and bolsters. This unit construction insures true wheel alignment at all times. Superior performance, good riding qualities, and low upkeep costs result from this simplified design.

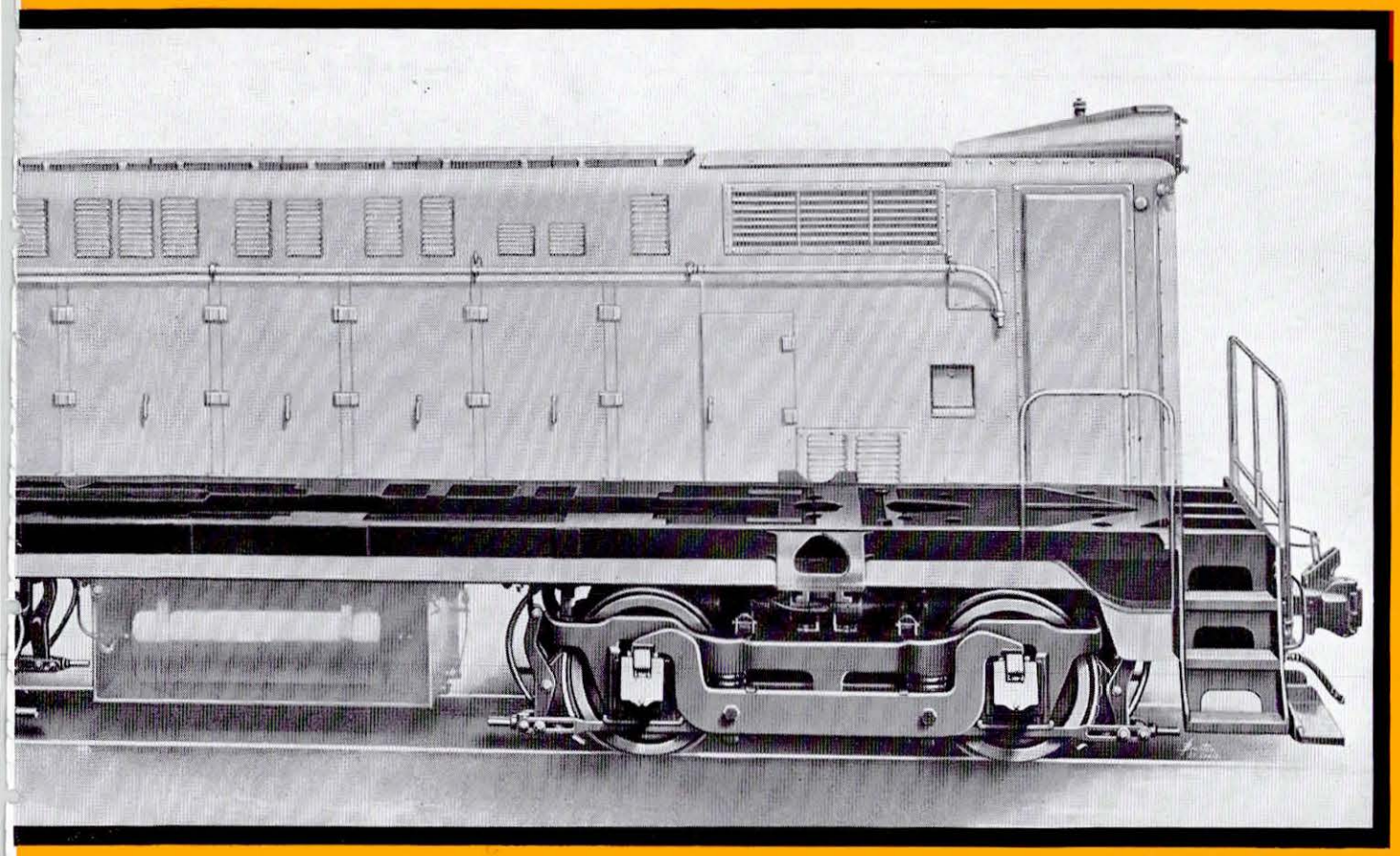
For maximum performance and long-range economy, specify COMMONWEALTH Cast Steel DIESEL UNDERFRAMES and MOTOR TRUCKS.



Equip Your Diesel Switchers with

GENERAL

ECONOMY . . .

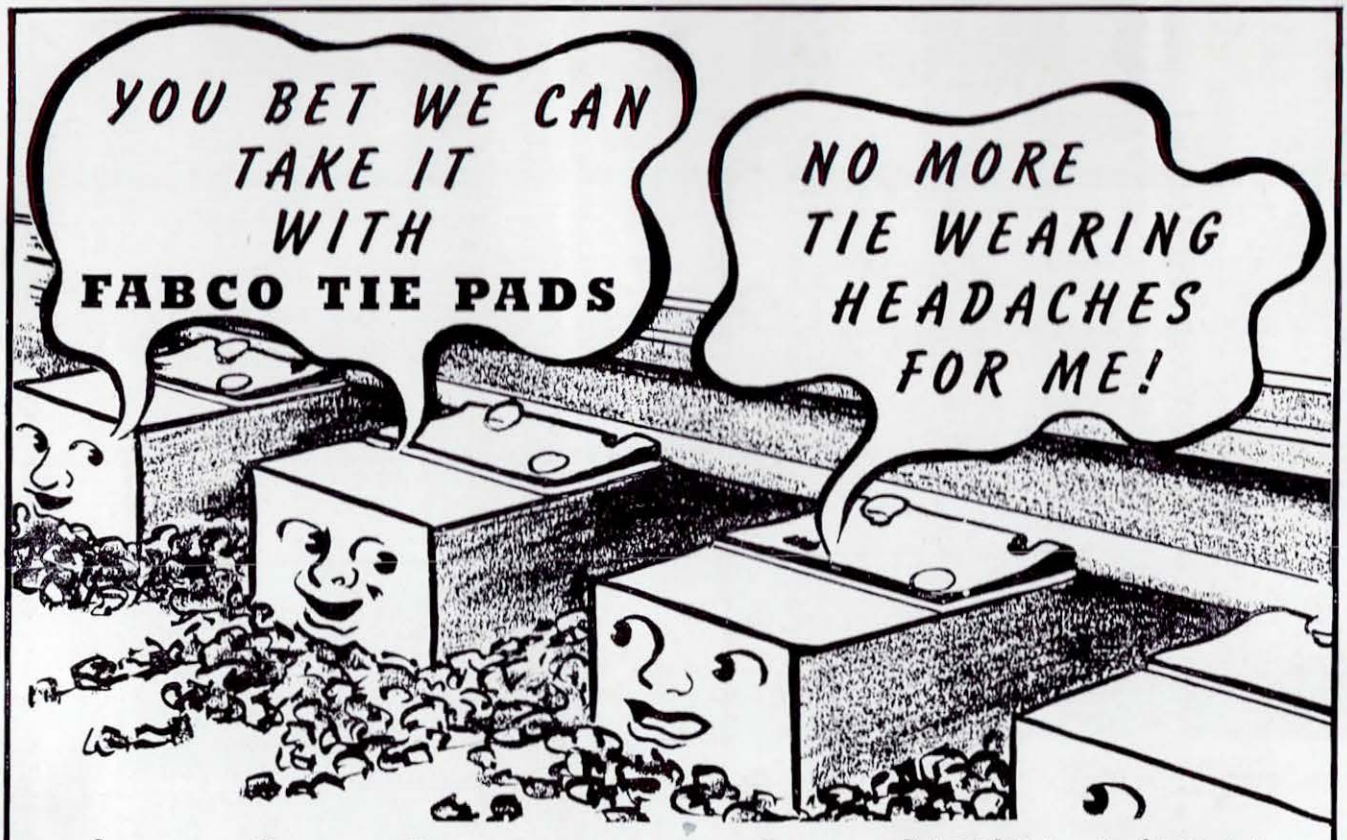


COMMONWEALTH

UNDERFRAMES AND TRUCKS

STEEL CASTINGS

GRANITE CITY, ILL. • EDDYSTONE, PA.



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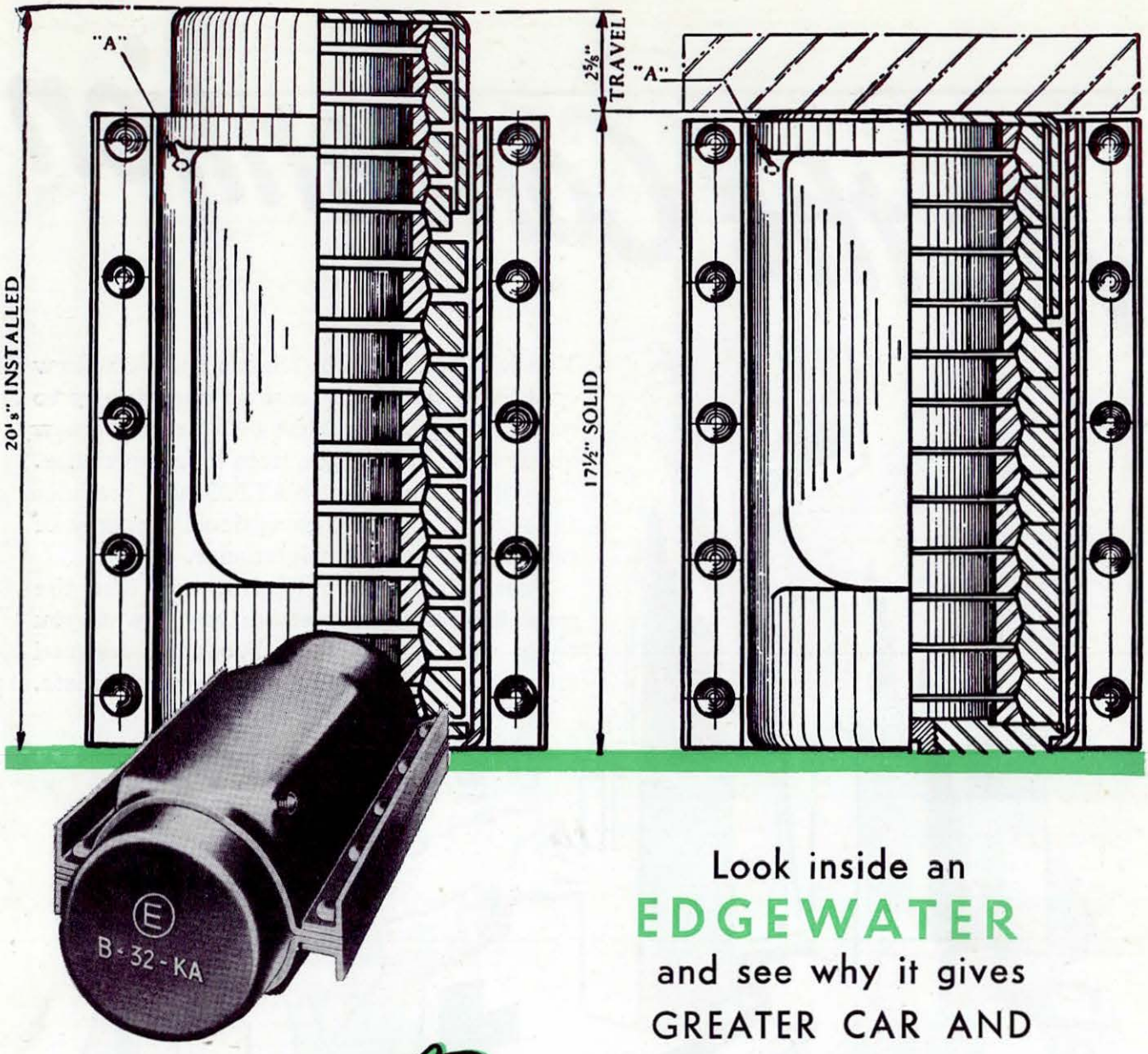


Edgewater

B - 32 KA

RING SPRING DRAFT GEAR

Look inside an EDGEWATER and see why it gives GREATER CAR AND LADING PROTECTION

The principle of the Edgewater Draft Gear is simplicity itself. Inside are two nests of ring springs; one stretches under the pressure; the other compresses. Both have the dual purpose of supplying frictional resistance and returning the gear to rest position the instant pressure is released. To re-emphasize, *one* part performs *both functions!*

This distinguishing feature makes the Edgewater Draft Gear different from any other. It is tried and proved. Laboratory tests and service records assure you of trouble-free long life and greater protection when you install Edgewaters in your freight cars.

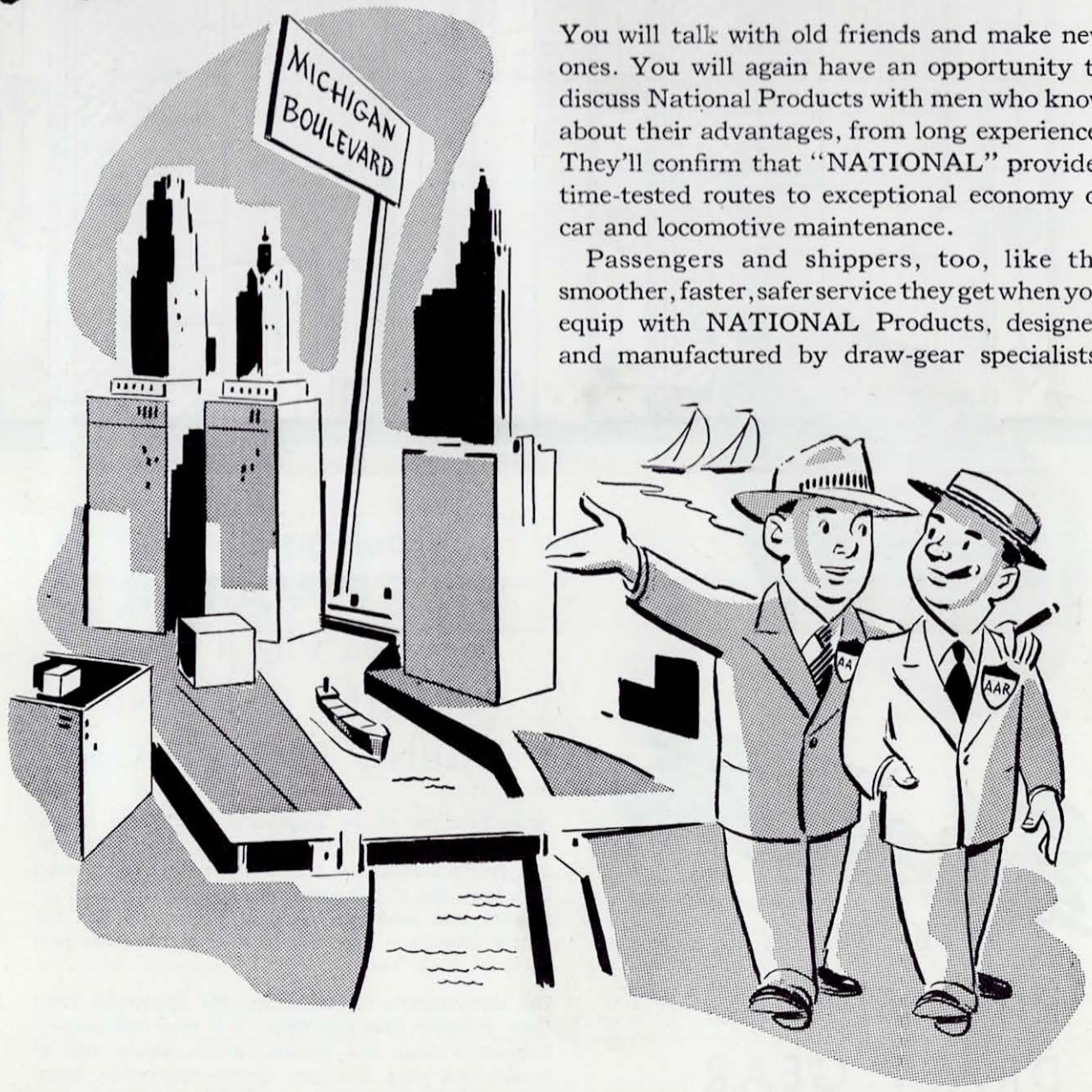
Edgewater Draft Gears fit standard draft gear pockets and never need lubrication attention.

EDGEWATER STEEL COMPANY

PITTSBURGH 30, PA.

Atlanta, Baltimore, Boston, Cleveland, Chicago, Kansas City, Louisville, New York, Philadelphia, Seattle, St. Paul, St. Louis, San Francisco, Washington

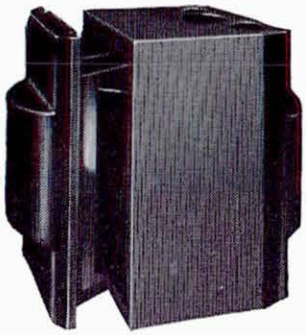
At the Convention



You will talk with old friends and make new ones. You will again have an opportunity to discuss National Products with men who know about their advantages, from long experience. They'll confirm that "NATIONAL" provides time-tested routes to exceptional economy of car and locomotive maintenance.

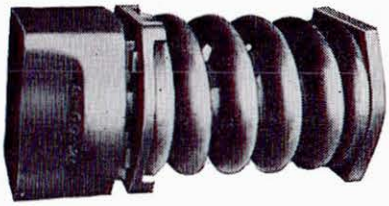
Passengers and shippers, too, like the smoother, faster, safer service they get when you equip with NATIONAL Products, designed and manufactured by draw-gear specialists.

NATIONAL MALLEABLE AND

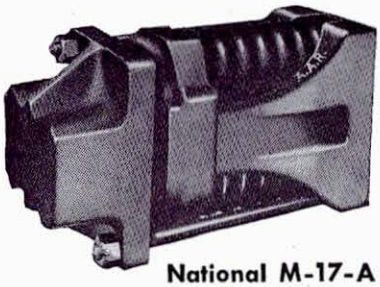


National Type M-350-A Rubber-Cushioned Draft Gear for diesel passenger locomotives

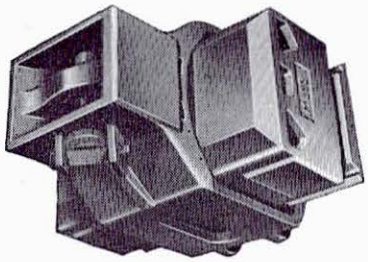
National M-50-B Draft Gear for freight car service

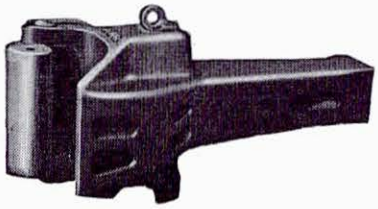


National Type M-385 Rubber-Cushioned Draft Gear for heavy diesel and electric locomotives



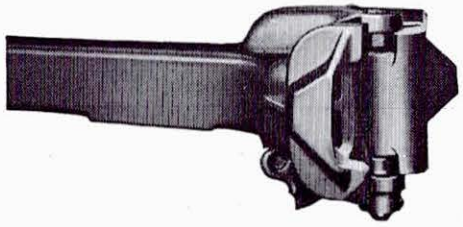
National M-17-A Draft Gear for freight car service

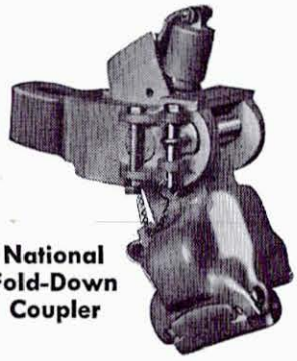




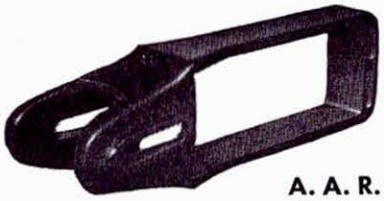
A. A. R. Standard "E" Coupler

A. A. R. Tightlock Coupler

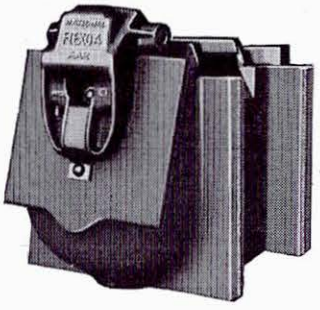




National Fold-Down Coupler

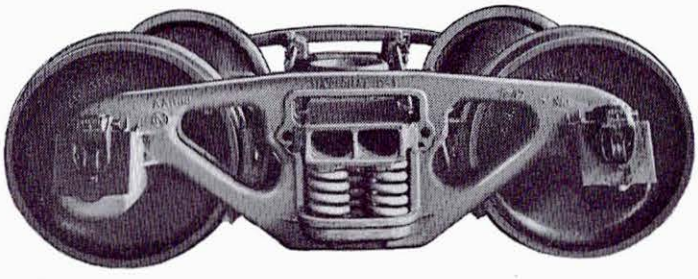


A. A. R. Vertical Plane Horizontal Key Yoke



National Flexo-4 Journal Box Lid

National C-1 Truck



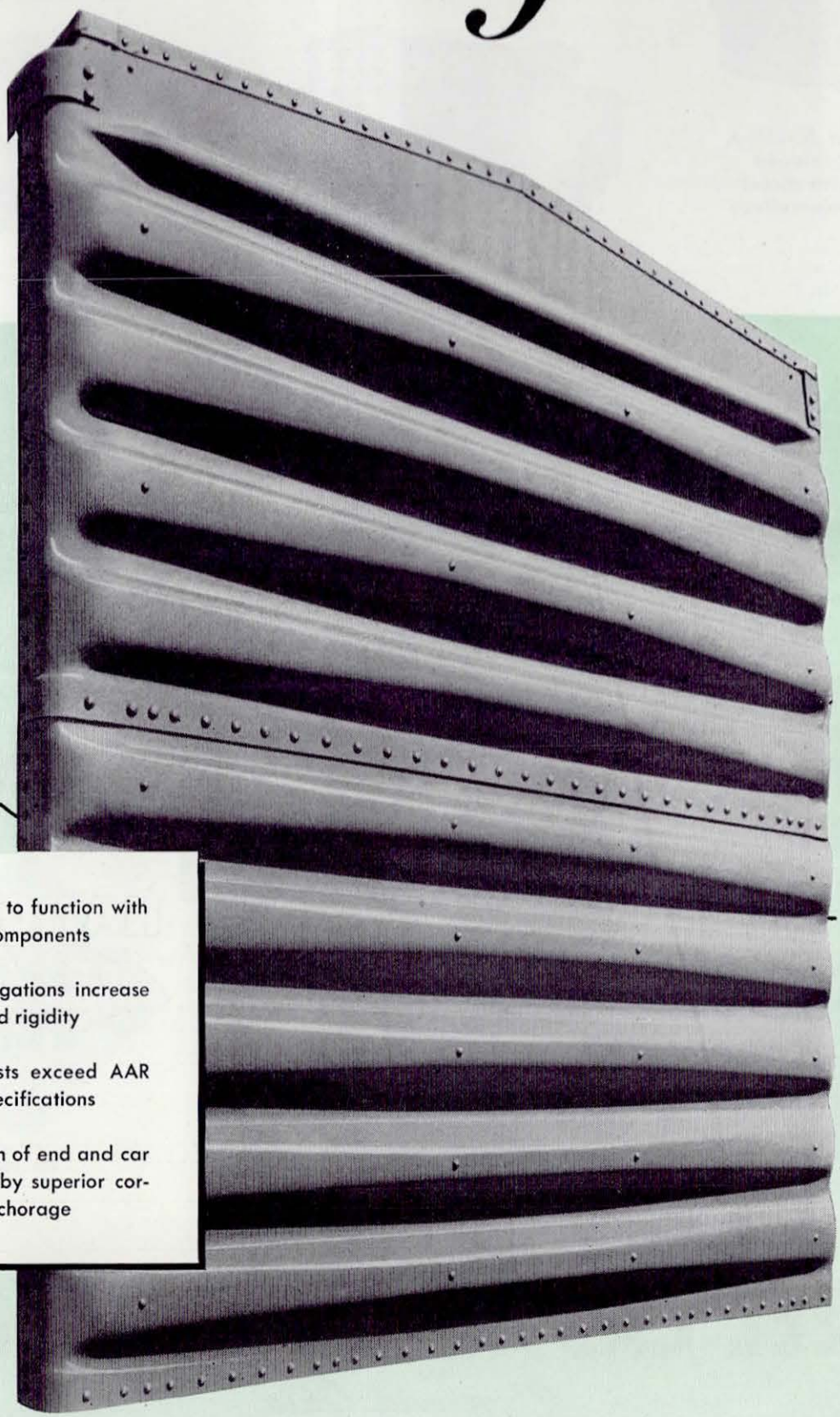
NATIONAL Products FOR TRANSPORTATION AND INDUSTRY

Est. 1868

STEEL CASTINGS COMPANY

Cleveland, Ohio

Right . . .



- Engineered to function with other car components
- Deep corrugations increase strength and rigidity
- Corner posts exceed AAR strength specifications
- Full strength of end and car developed by superior corner-post anchorage

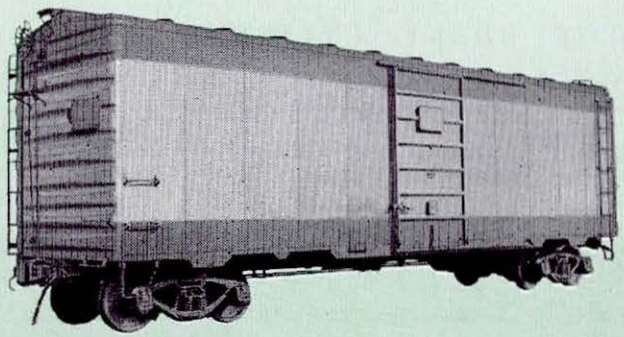
from End to End

P·S·1

From end to end, from side to side, from underframe to roof, *uncommon sturdiness* characterizes the construction of the P-S-1 box car. And uncommon *value,* too. For P-S-1 is Pullman-Standard's *standardized* box car, built with line-production efficiency and economy to give America's railroads superior cars at lowest possible cost. The fast-growing acceptance of P-S-1 shows that principle *and practice* are on the right track.

Since the introduction of the P-S-1, nearly 40% of all box cars ordered from all contract carbuilders, and over 28% of ALL box cars ordered from ALL sources, have been P-S-1 cars.*

** Percentages based upon car-order figures reported by American Railway Car Institute, April, 1948.*



Pullman-Standard

CAR MANUFACTURING COMPANY

CHICAGO • NEW YORK • CLEVELAND • WASHINGTON, D. C. • PITTSBURGH • BIRMINGHAM • WORCESTER, MASS.

SAN FRANCISCO SALES REPRESENTATIVE, MARK NOBLE

TIME! DELAYS! CONGESTION!

Reduced by the application of a **BRAKE CYLINDER RELEASE VALVE** to "AB" freight car brake equiqments.

EASILY INSTALLED IN THE BRAKE CYLINDER PIPE BETWEEN THE "AB" CONTROL VALVE AND THE BRAKE CYLINDER . . .

YOU trip the Brake Cylinder Release Valves as fast as you can walk the length of a cut of cars.

THE BRAKE CYLINDER RELEASE VALVES then automatically "bleed" the brakes without disturbing the auxiliary and emergency reservoir pressures.

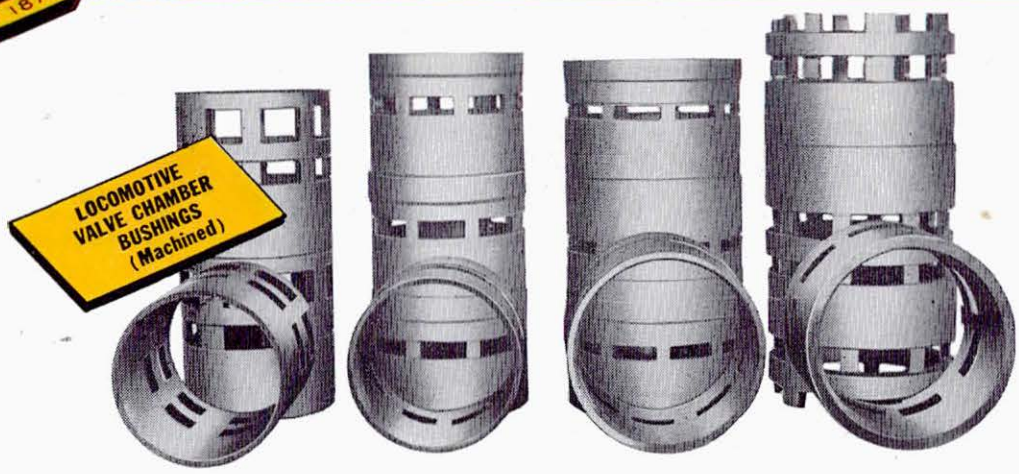
LESS AIR is required for recharging the brake system by retaining air in 6000 cubic inches of combined reservoir volume on each car during "bleeding" operations.

For information and descriptive circular, write

The New York Air Brake Company

420 Lexington Ave., New York 17, N.Y. Plant: Watertown, N.Y.

AIR FURNACE IRON...



WEARS LONGER...WEARS BETTER...

THAN ANY OTHER TYPE FOR LOCOMOTIVES!

Air Furnace Iron offers greater resistance to frictional wear and high temperatures—due to its fine grain structure and uniform carbon distribution. Bushings of Air Furnace Iron machine smoother and wear without grooving and pitting. You can depend on unvarying quality because the iron is scientifically controlled in the Air Furnace, and thoroughly tested after conversion as a double check. Always specify LFM Air Furnace Iron for cylinder and valve chamber bushings for better service and economy.

If you have any problems concerning heavy equipment, call on us at any time. Our engineering and shop facilities are at your disposal—without obligation to you!

THE LOCOMOTIVE FINISHED MATERIAL CO.

ATCHISON, KANSAS . . . *Main Offices and Plant*
New York City **Chicago, Illinois**

Lightweight Piston & Sectional Packing Ring

Universal Alloy Electric Steel Frogs

Universal Wheel Centers

Diesel Locomotive One Piece Truck Frames

PIONEERS OF THE LIGHTWEIGHT PISTON—ORIGINATORS OF "LIPPED-TYPE" PACKING

NO WAITING for these NOW-IN-STOCK ITEMS

LOOKING FOR . . .

Life-Line Motors?
Electronic Tubes?
Dry-Type Transformers?
Industrial Analysis?
Lightning Arresters?
Lighting Fixtures?
Rectox Battery Chargers?

HERE THEY ARE . . . NOW IN STOCK

The modern Westinghouse railroad equipment shown here is yours on a NO WAITING basis. These items are NOW IN STOCK—in the sizes and ratings shown on the opposite page.

And what's more—you're assured of top performance with this Westinghouse railroad equipment, for it stems from more than 60 years of collaboration with American railroads to further the transportation industry.

Write, wire or telephone your nearest Westinghouse office for immediate delivery of these NOW-IN-STOCK items. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.

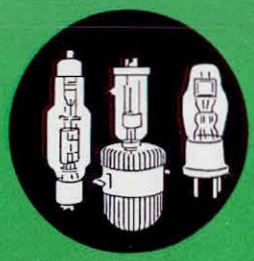
J-95144

Westinghouse

PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

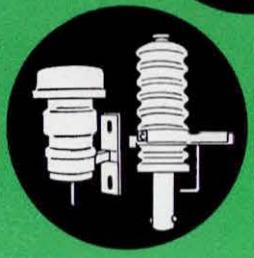
Life-Line motors, from 1 to 15-hp, 220/240-volt, 2 or 3-phase, 50 or 60-cycle.

Replacement electronic tubes for all types of electronic apparatus. Consult Catalog 86-020.



Type AVR dry-type transformer for indoor service; 15 to 200-kva, single-phase; 37½ to 300-kva, 3-phase.

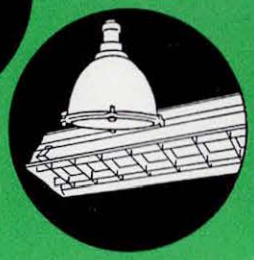
TX Industrial Analyzer for d-c circuits; 3, 6, 750 amps; 15, 150, 300, 750 volts; 200 to 20,000 ohms (5 to 500 midscale).



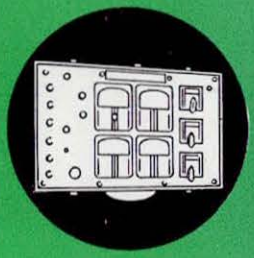
Lightning Arresters: two types are available . . . Type A "De-ion" arresters (3 to 15-kv, inclusive) and Type LV autovalve arresters (3 to 15-kv, inclusive).

Rectox Battery Charger, fully automatic, self-contained, mobile, fully tested. Send for booklet B-3642A for latest information.

Type AJR dry-type transformer for indoor or outdoor service; 3 to 10-kva, single-phase; 10 to 25-kva, 3-phase.



Lighting fixtures and lamps for every type of lighting . . . office, yard, passenger car, signals.



TA Industrial Analyzer for a-c circuits; 5, 25, 125 amps; 150, 300, 600 volts; 25-133 cycles (self-contained) 10-100-800/0 power factor; up to 25-kw, single or polyphase circuits.

SERVICE DEPT.

A NATIONWIDE SYSTEM THAT INCLUDES FIELD ENGINEERS, MAINTENANCE AND REPAIR PLANTS AND RENEWAL PARTS WAREHOUSES . . . EVERYWHERE!

- ● Manufacturing and Repair Plants
- ○ Field Engineering Offices
- — Warehouses with items now in stock

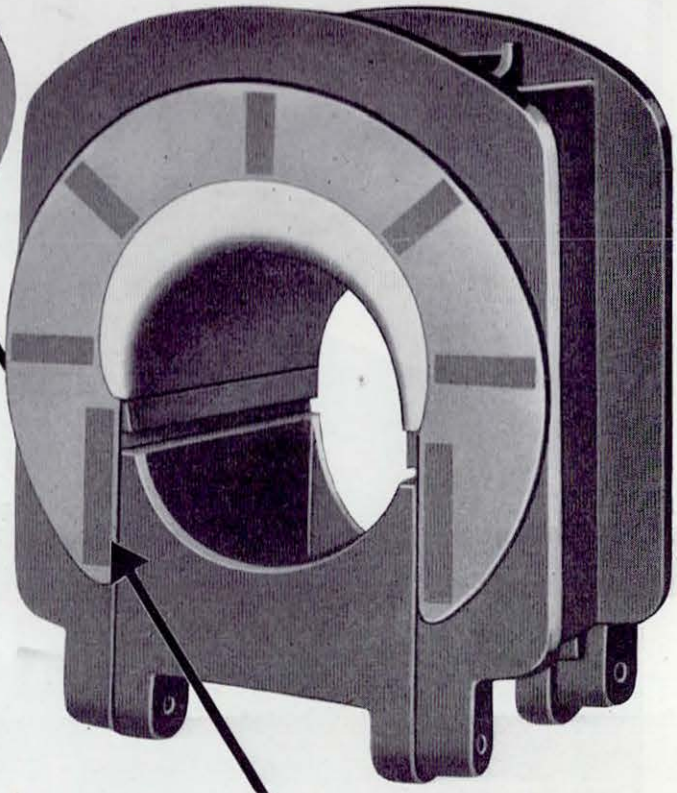
. . . PARTNER IN RAILROAD PROGRESS

Modern MAGNUS BEARINGS *Improved*

BRONZE INSERTS in Satco Facing

The Bronze Inserts in the Satco Metal Facing in the Driving Box, illustrated, hold down Hub Temperatures and increase endurance against both wear and impact.

Composite Bearings of this type are also applicable to Locomotive Trucks and Trailer Boxes.



Satco-Faced Locomotive Driving Box Facing with Bronze Inserts

SATCO *Bearing Metal*

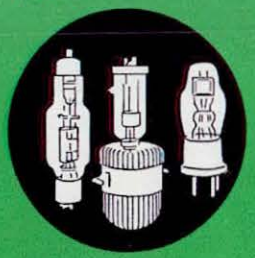
MODERN HEAVY DUTY BEARINGS

MAGNUS METAL CORPORATION
CHICAGO NEW YORK

2526

Life-Line motors, from 1 to 15-hp, 220/240-volt, 2 or 3-phase, 50 or 60-cycle.

Replacement electronic tubes for all types of electronic apparatus. Consult Catalog 86-020.



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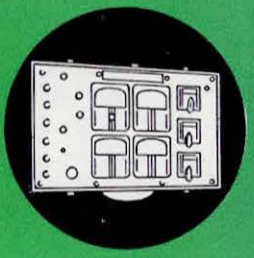
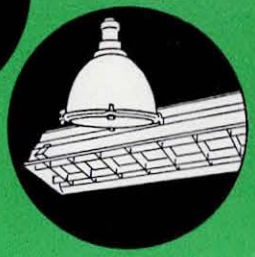
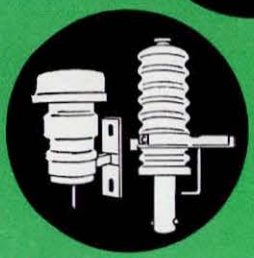


TA Industrial Analyzer for a-c circuits; 5, 25, 125 amps; 150, 300, 600 volts; 25-133 cycles (self-contained) 10-100-800/0 power factor; up to 25-kw, single or polyphase circuits.



Lighting fixtures and lamps for every type of lighting . . . office, yard, passenger car, signals.



Lightning Arresters: two types are available . . . Type A "De-ion" arresters (3 to 15-kv, inclusive) and Type LV autovalve arresters (3 to 15-kv, inclusive).

Rectox Battery Charger, fully automatic, self-contained, mobile, fully tested. Send for booklet B-3642A for latest information.

Type AJR dry-type transformer for indoor or outdoor service; 3 to 10-kva, single-phase; 10 to 25-kva, 3-phase.

SERVICE DEPT.

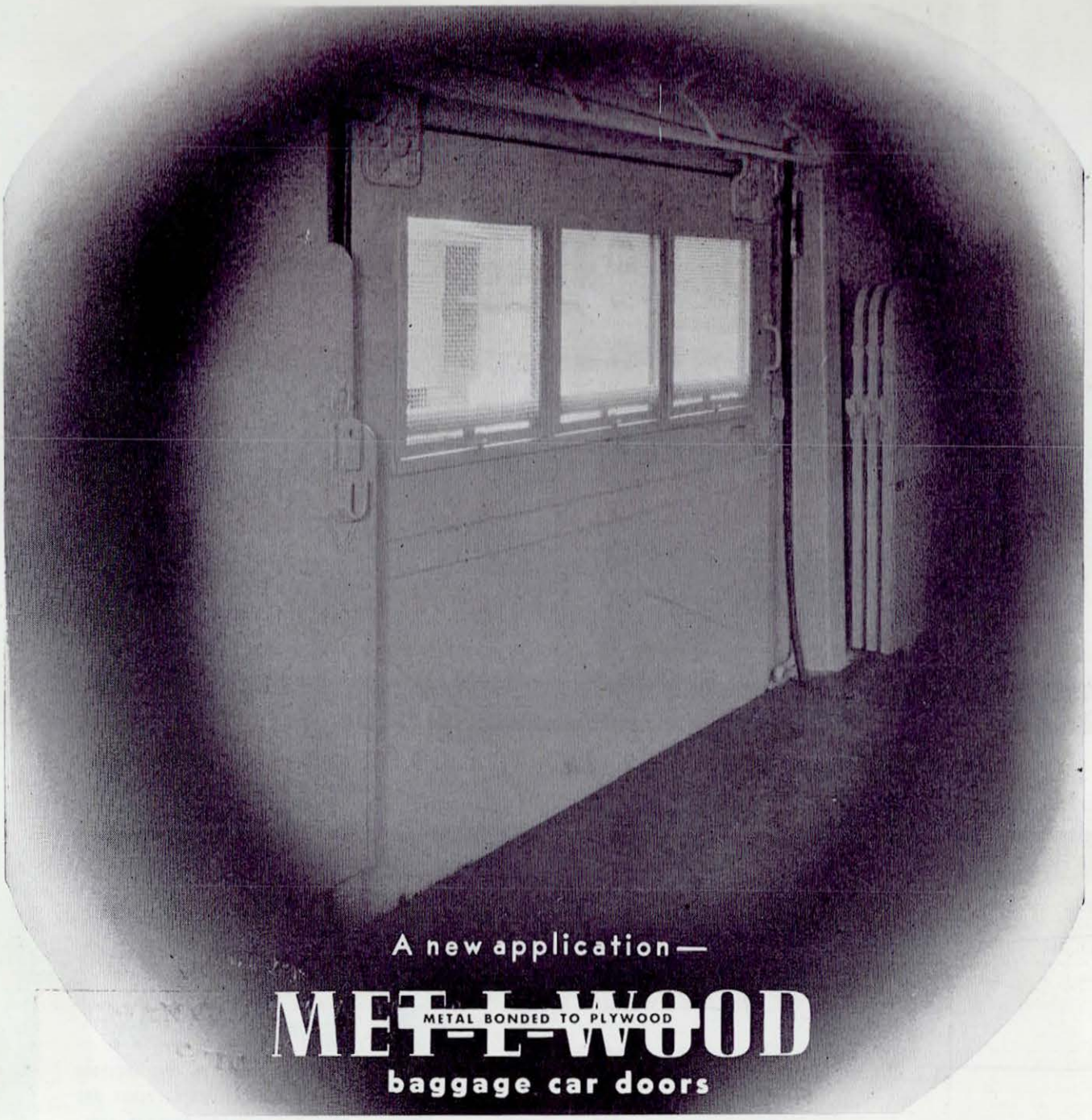
A NATIONWIDE SYSTEM THAT INCLUDES FIELD ENGINEERS, MAINTENANCE AND REPAIR PLANTS AND RENEWAL PARTS WAREHOUSES . . . EVERYWHERE!

● Manufacturing and Repair Plants

○ Field Engineering Offices

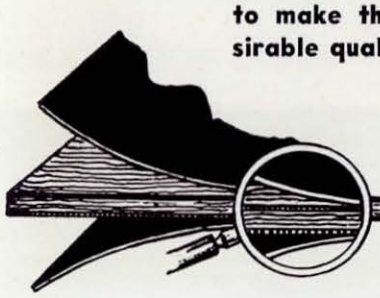
— Warehouses with items now in stock

. . . PARTNER IN RAILROAD PROGRESS



aves weight . . . promotes ease of operation . . . gives added durability . . . increases life of hardware . . . simplifies installation . . . for new and modernized cars . . . preformed and fabricated to your designs and specifications.

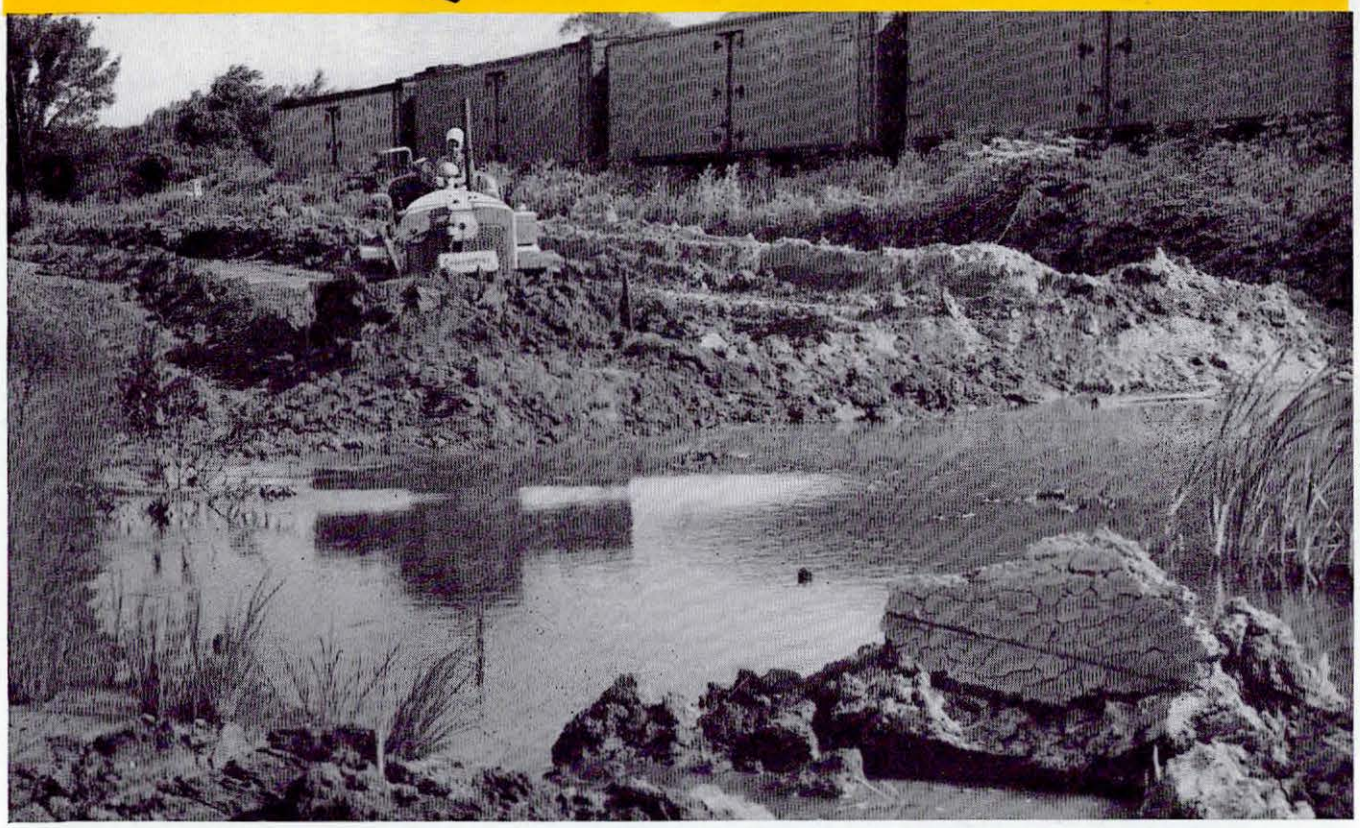
Consider this remarkable material when you order new cars or plan a modernization program. Our engineering staff will gladly help you to make the most advantageous use of MET-L-WOOD's many desirable qualities.



MET-L-WOOD CORPORATION

6755 West 65th Street, Chicago 38, Illinois

DUCK SOUP FOR THIS 'DOZER



THE "Caterpillar" Diesel Tractor and Bulldozer you see above wades right through the toughest assignments you can find. And there are plenty of rough jobs for them along most rights of way.

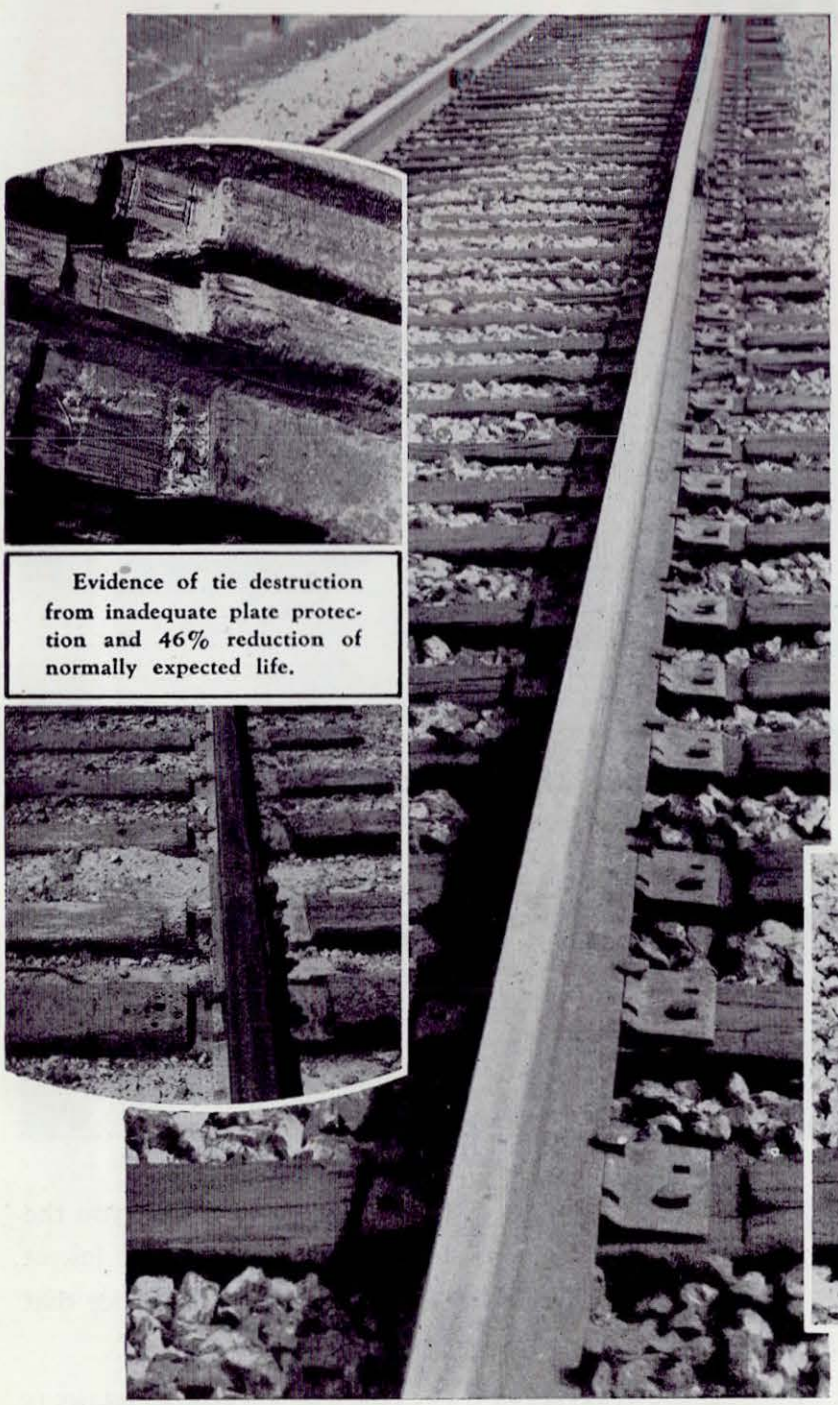
The drainage problem being cleared up here is only one of many railway earthmoving projects which "Caterpillar" Diesel Tractors and auxiliary equipment can do quickly and economically. Their versatility and dependable power turn in equally efficient performance when filling low spots, building grades, cleaning stream beds, roughing out ditches and spreading ballast.

"Caterpillar" Diesels are built to give you the best in hard-hitting, balanced units at the lowest operating costs. Add to that a dealer service that is recognized as "the best in the business."

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

CATERPILLAR
REG U S PAT OFF
DIESEL ENGINES • TRACTORS
MOTOR GRADERS
EARTHMOVING EQUIPMENT

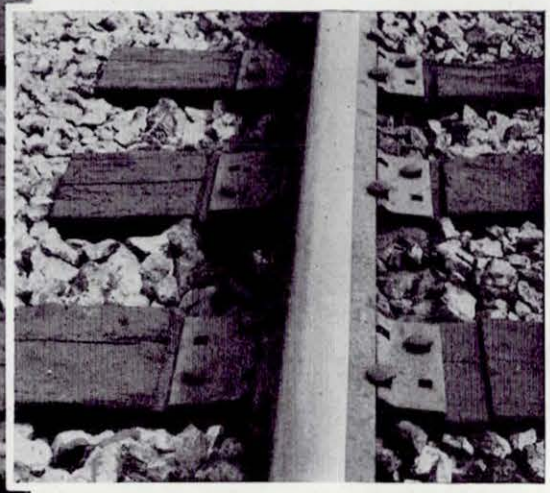
Trails to Keep 'Em Rolling Made Secure



Evidence of tie destruction from inadequate plate protection and 46% reduction of normally expected life.

Tie plates affording increased bearing area, more uniform load distribution, minimized unit stress on tie fibre, will insure tie economy and reduced maintenance costs.

A quality product of CF&I contributing to improved track structure.



CF&I TIE PLATES MEET ALL A. R. E. A. SPECIFICATIONS

RAILS AND ACCESSORIES, REALOCK FENCE, SPARK ARRESTER CLOTH,
WICKWIRE ROPE, WOVEN WIRE FENCE, CLINTON WELDED WIRE FABRIC

All Quality Products of CF&I Serving the Railroad Needs

The Colorado Fuel and Iron Corporation

General Offices: Denver, Colorado

MAXIMUM PROTECTION

FOR CARS and LADING

Cardwell and Westinghouse shock-absorbing devices protect rolling stock against excessive horizontal, vertical, lateral and angular forces. They are designed with a high factor of safety, resulting in capacities well above the requirements.

WESTINGHOUSE
Friction Draft Gear
Certified A.A.R.

CARDWELL
Friction Bolster Springs
. . . for A. A. R. and
Long-Travel Springs.

Over 98% of the cars in freight carrying service are A. A. R. construction and over 96% have Friction Draft Gears.

Cardwell Westinghouse Co., Chicago
Canadian Cardwell Co., Ltd., Montreal

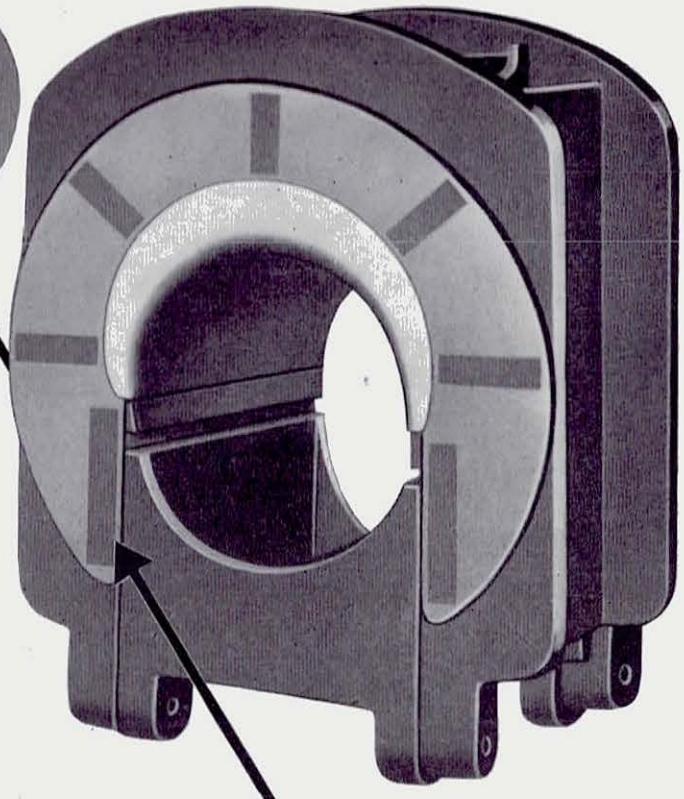
G 2764

Modern MAGNUS BEARINGS *Improved*

BRONZE INSERTS in Satco Facing

The Bronze Inserts in the Satco Metal Facing in the Driving Box, illustrated, hold down Hub Temperatures and increase endurance against both wear and impact.

Composite Bearings of this type are also applicable to Locomotive Trucks and Trailer Boxes.



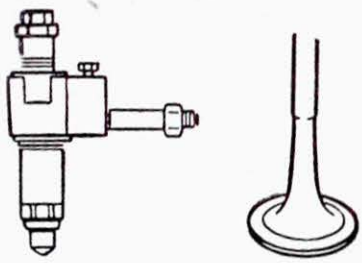
Satco-Faced Locomotive Driving Box Facing with Bronze Inserts

SATCO Bearing Metal

MODERN HEAVY DUTY BEARINGS

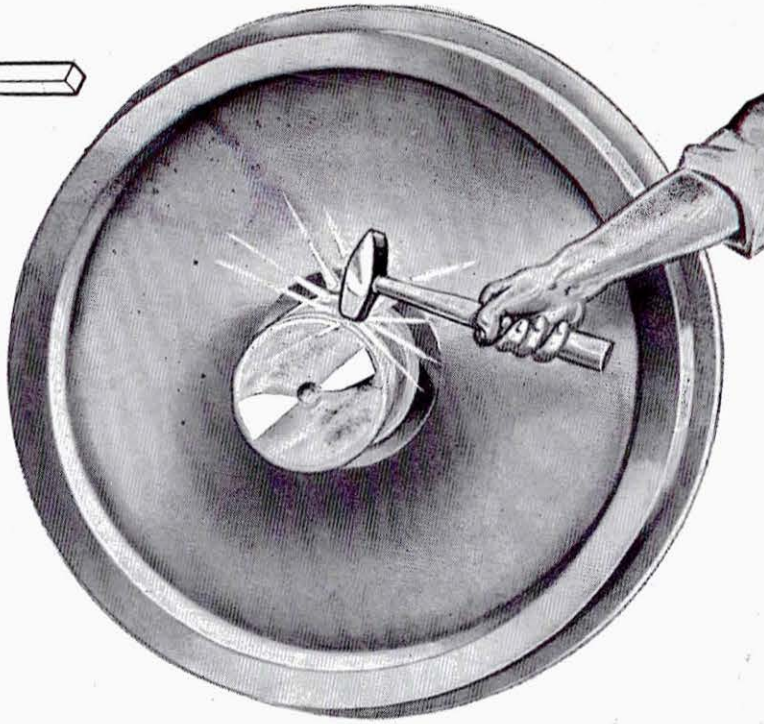
MAGNUS METAL CORPORATION
CHICAGO NEW YORK

2526



Another New Product From

SPRING PACKING CORPORATION!



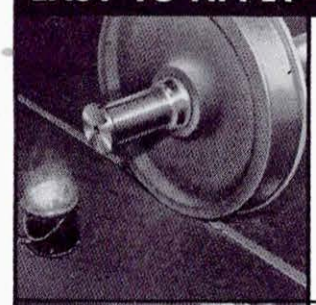
PLASTIC ARMOR . . .

Protects Metal Against

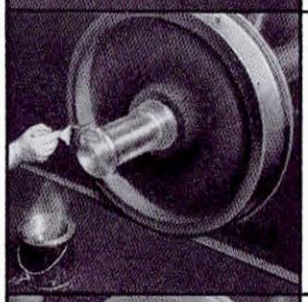
RUST • CORROSION • DUST • DAMAGE • BREAKAGE

Easily applied by brushing, spraying or dipping, Plastic Armor forms a skin-tight hermetic seal over any solid in 34 seconds . . . effectively prevents the formation of rust on metal within the plastic package. Does not become brittle or soft (like greases) through a wide temperature range . . . is highly resistant to shock or abrasion. Economical to use because labor in removing is almost nil (requires only 8 seconds), and material is reclaimable. Write *today* for full information.

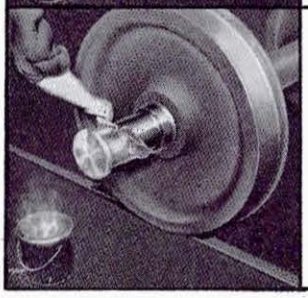
EASY TO APPLY—EASY TO REMOVE



1. Newly machined, this journal is ready for Plastic Armor application. Once coated, the journal will remain in perfect condition indefinitely.



2. Plastic Armor is *brushed* on without preliminary wiping or cleaning. Journal now protected against rust, acids, fumes or abrasion.

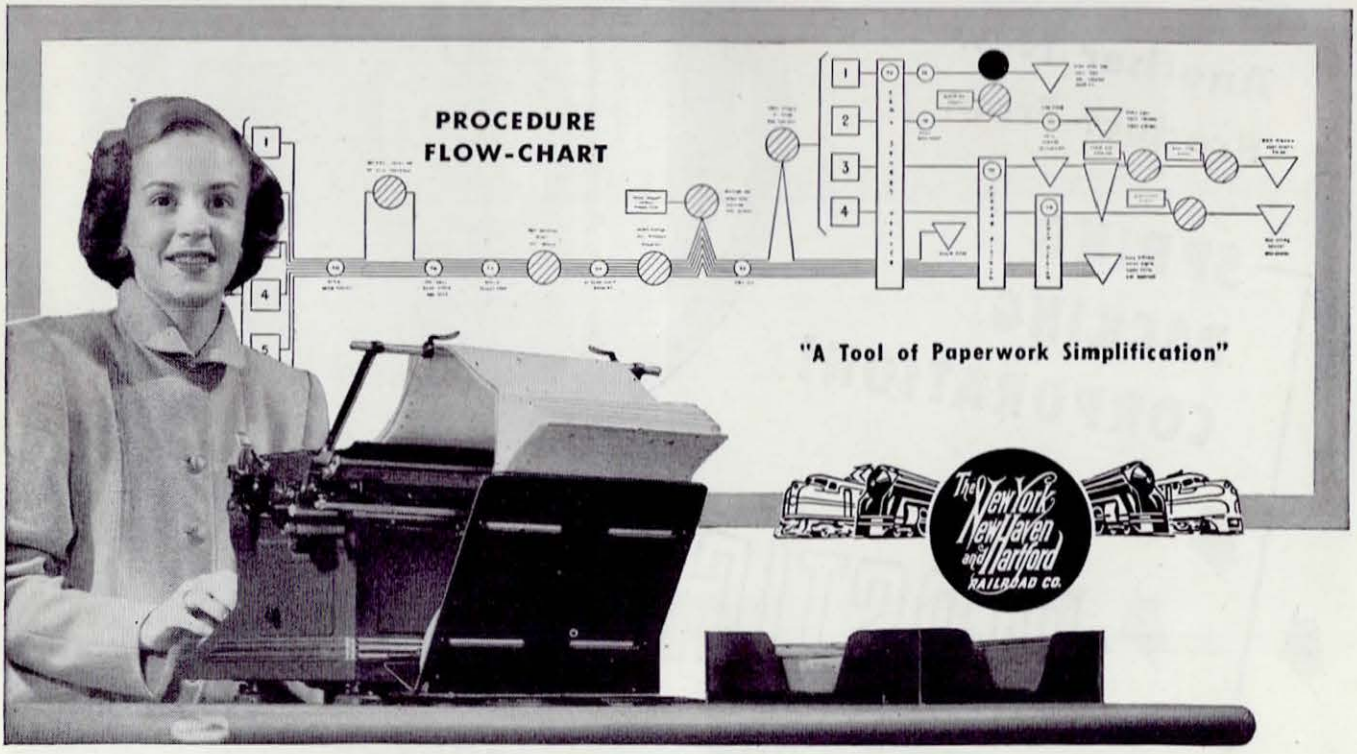


3. After weeks or months of storage, Plastic Armor is removed simply by stripping off like peeling a banana. Used material is reclaimable.

SPRING PACKING CORPORATION

122 SOUTH MICHIGAN AVE.
CHICAGO 3, ILLINOIS

How EXPERT STUDY Improved the Handling of Purchase and Stores Requisitions!



Standard Register "Paperwork Simplification" Reduces work, time and costs for THE NEW YORK, NEW HAVEN AND HARTFORD RAILROAD COMPANY

The problem in General Stores of processing requisitions from hundreds of locations created excessive retyping operations. Delays of 48 to 96 hours for the retyping of purchase requisitions and purchase orders were common. And in addition, the forms used produced poor carbons, and too few to supply all departments concerned.

Standard Register specialists, applying exclusive "Paperwork · Simplification" techniques, created improved procedures, for a better flow of paper work, and established improved form designs, with construction to fit the requirements of the new procedure. Elimination of retypings were effected. Typists became more efficient at their regular duties. Delivery delays were greatly reduced. And there were accurate and clearly legible copies of all forms to serve all concerned. Slow and wasteful checking was eliminated, so was the error hazard.

Cut Costs—Pyramid Savings!

Standard Register "Paperwork Simplification" extends through the entire operational structure, increasing efficiencies, saving time and labor, cutting costs. Savings pyramid. They start with more efficient forms, which reduce the cost of writing and handling, and reach very high figures in greatly improved management control.

Get the Vital Facts!

Let Standard Register specialists effect these savings for you. Write today on your business letterhead for a copy of "The ABC of Work Simplification In Office Operations."

Bring Your Forms Up to Standard

Standard Register

Exclusive Source of
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THE STANDARD REGISTER COMPANY, 1106 Campbell Street, Dayton 1, Ohio

Pacific Coast: Sunset McKee-Standard Register Sales Co., Oakland 6, California. *Canada:* R. L. Crain Limited, Ottawa. *Great Britain:* W. H. Smith & Son, Ltd., London.

improved

1 Larger Volute Spring Diameter
(Utilizes All Available Space)

2 Greater Frictional Area

3 Wider, Thicker Spring Bar

4 Greater Vertical and Lateral Stability

5 Alloy Spring Steel—AISI 9262

HOLLAND COMPANY
332 S. MICHIGAN AVE.
CHICAGO 4, ILLINOIS

Result: Greater ruggedness—longer life

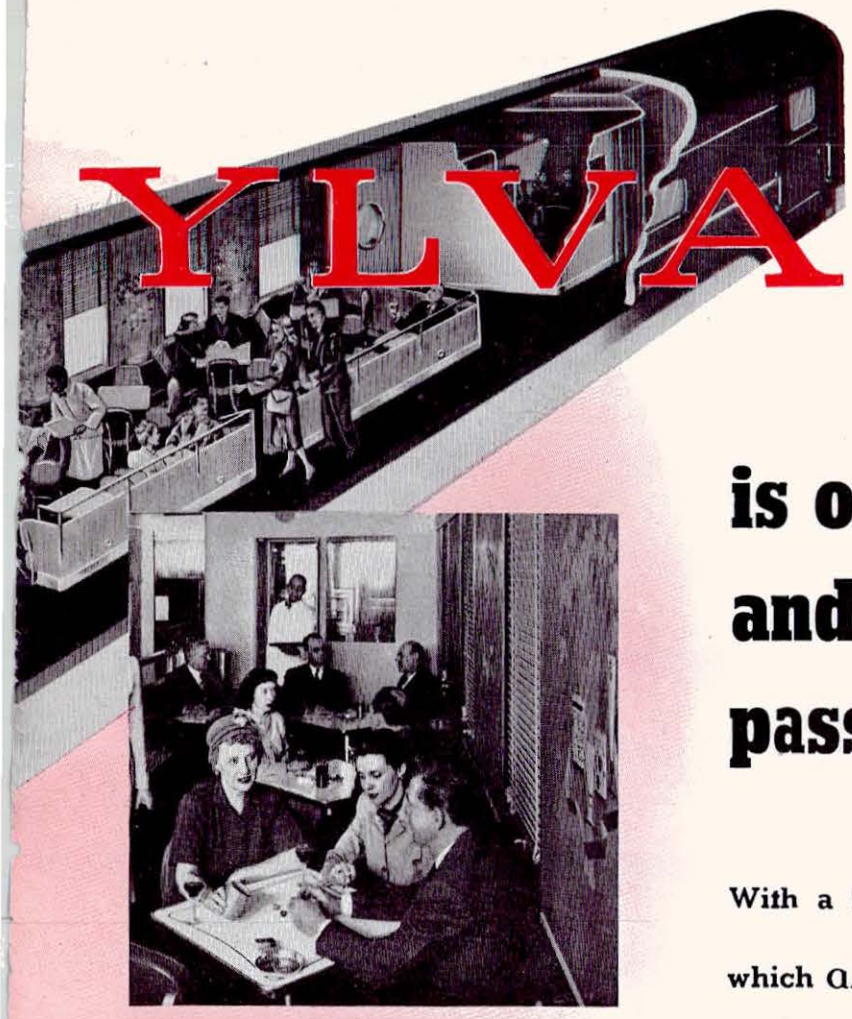
2858

The PENNS

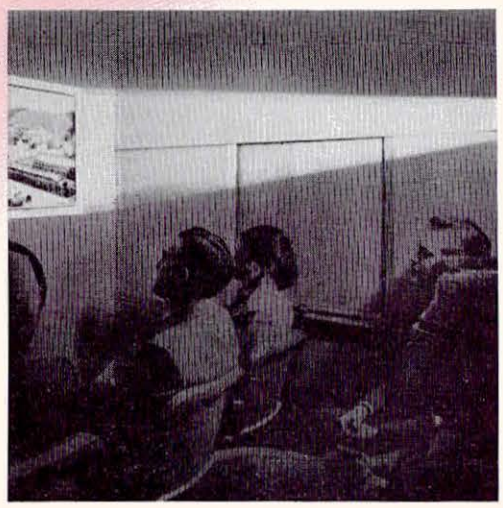
POPULAR CLUB ROOM
has facilities for letter writing, a rubber of bridge, other games...or just plain relaxation in a comfortable lounge chair.

ROOM FOR THE CHILDREN, TOO
in a glass-enclosed Nursery. A happy spot for tots tucked safely away in a world of specially designed furniture, toys, blackboards and games.

YLVANIA



TAVERN-ON-THE-TRAIN
smartly recessed, where a change of scenery and a snack are sure to flatter a passenger's travel sense...make any trip a memorable one!



CONTINUOUS NEWS REELS
are shown in a compact glass partitioned theater. Passengers can enjoy the show as the miles speed by.

is out to win friends and influence passengers...

With a far-reaching modernization program in which a.c.f. passenger-car construction plays an important role. This novel Recreation Car is an example of the progressive design that will attract more and more people to rail travel.

American Car and Foundry Company · New York · Chicago · St. Louis · Cleveland · Philadelphia · Washington · Pittsburgh · San Francisco.

a.c.f.

CAR BUILDERS TO AMERICA'S RAILROADS

Table II—Improvement in Six Samples of Diesel Fuel Oil after Filtering

Sample No.	Appearance	Moisture	Sediment
1	Clear	Nil	Nil
2	Clear	Nil	Nil
3	Clear	Nil	Nil
4	Clear	Nil	Nil
5	Clear	Nil	Nil
6	Clear	Nil	Nil

(Excerpt From Actual Railroad Test Report)

Diesel equipment, oil burners, pumps, meters, valves, injectors and all other oil operated or oil handling equipment are subject to excessive wear or failure in direct proportion to the amount of dirt in the liquid.

Filtration costs less than new equipment. Railroads save money when Bowser filters are installed.

LIQUID CONTROL SPECIALISTS

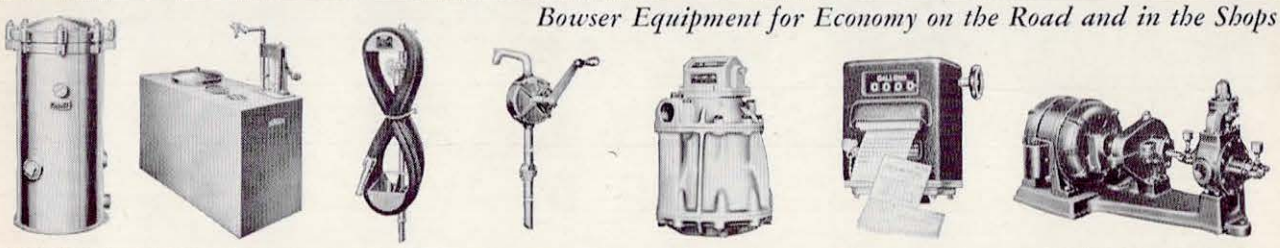
SINCE 1885

Efficiency, proved in railroad tests totaling over 6,000,000 gallons, proves Bowser filtration costs less than 5¢ per 1000 gallons! Bowser filters out particles as small as ½ micron (.00002 inch), and removes colloidal sludge.

Complete systems for handling railroad liquids are used by most railroads to reduce costs and maintenance of equipment. Your Bowser Railway Representative will gladly meet with you on any liquid handling problem.

STORAGE PUMPING FILTERING METERING RECORDING FUELING

Bowser Equipment for Economy on the Road and in the Shops

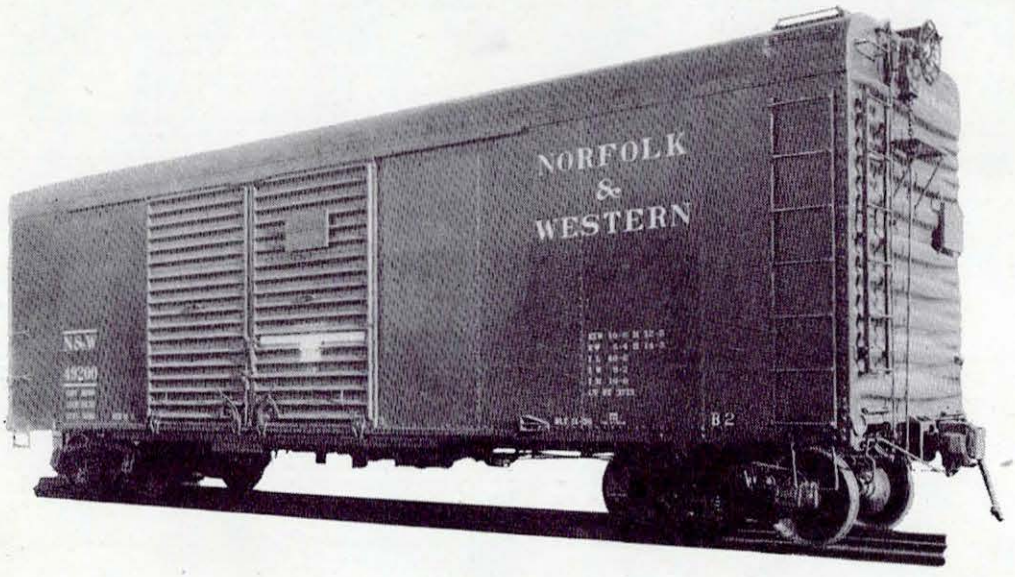


FUEL FILTERS | PETROLEUM PUMPS | FOG THROWERS | BARREL PUMPS | XACTO METERS | TICKET PRINTERS | ROTARY POWER PUMPS

BOWSER, INC. -- FORT WAYNE, IND.

BOWSER RAILWAY REPRESENTATIVES IN PRINCIPAL CITIES

Magor



FOR

DESIGN AND MANUFACTURE

FREIGHT CARS

AUTOMATIC AIR DUMP CARS

MAGOR CAR CORPORATION

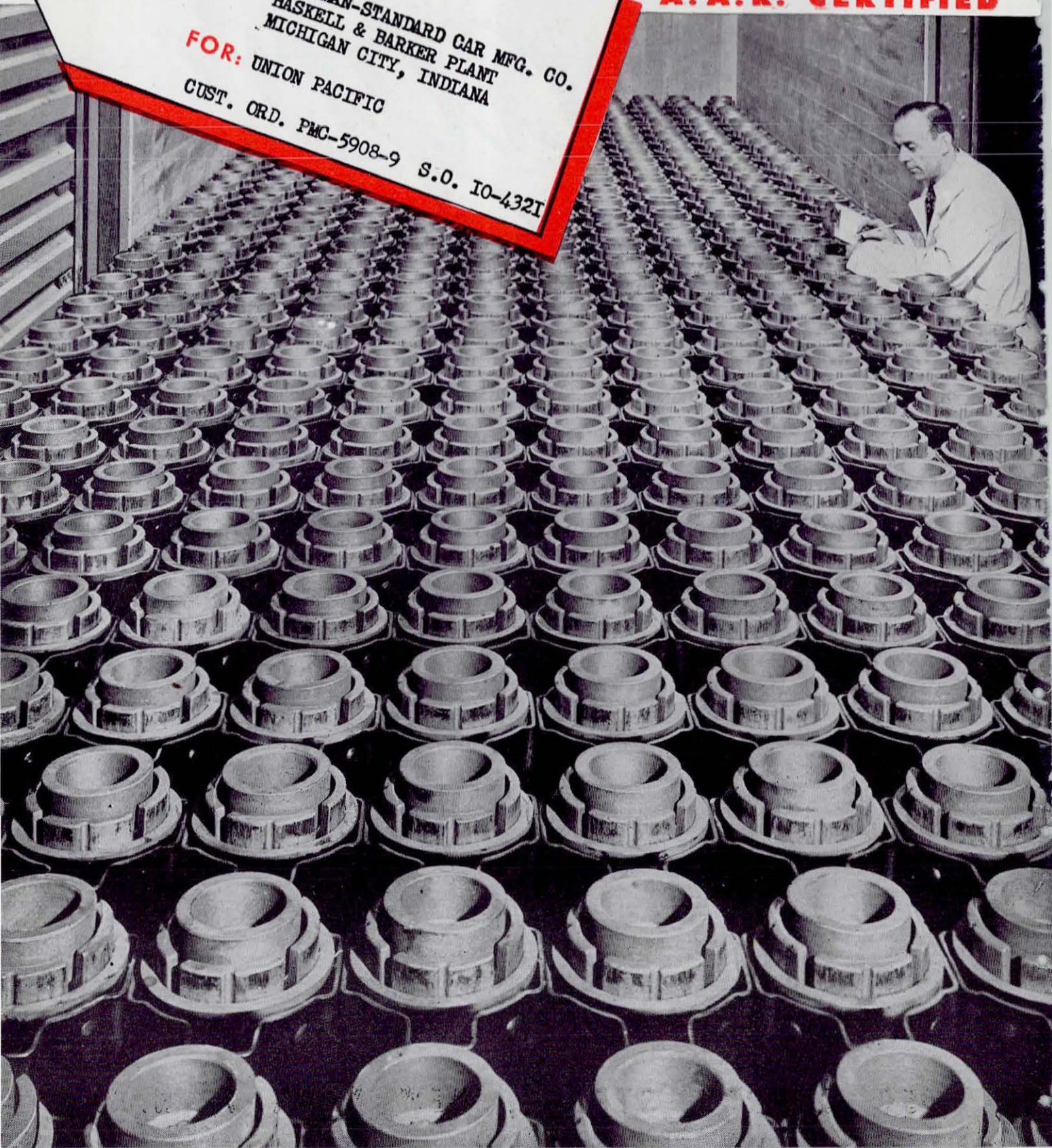
50 CHURCH STREET, NEW YORK 7, N. Y.

400 draft gears in one car!

THE HULSON TYPE 202

America's lightest weight draft gear

A.A.R. CERTIFIED



Ah-h-h This is Comfort!..

ON THE KARPEN 4081-2 COACH SEAT

The smooth, easy way this seat adjusts to the exact, desired position is as wonderful as its scientifically contoured design. Finger-tip control of five different, really relaxing positions and individual leg rests which extend easily to just the right angle for support and comfort take the strain out of travel, no matter how long the trip. Seat and back cushions are shaped to fit, based on actual service tests made on transcontinental runs. Individual ash trays and individual adjustable foot rests provide an extra measure of comfort and convenience. Offer this revenue-building comfort to your passengers!

S. KARPEN & BROS. TRANSPORTATION SEATING
624 S. Michigan Ave., Chicago • One Park Ave., N. Y.

George B. Cross Company EXCLUSIVE SALES AGENTS . . . .

6 POINTS TO REMEMBER WHEN CHOOSING

RAILROAD PASSENGER CAR BATTERIES

EXTRA LONG LIFE. EDISON batteries outlast all others in railroad service. When they finally complete their service life in heavy-duty air conditioning, regroup the cells and get a *second life* in lighter-duty service.

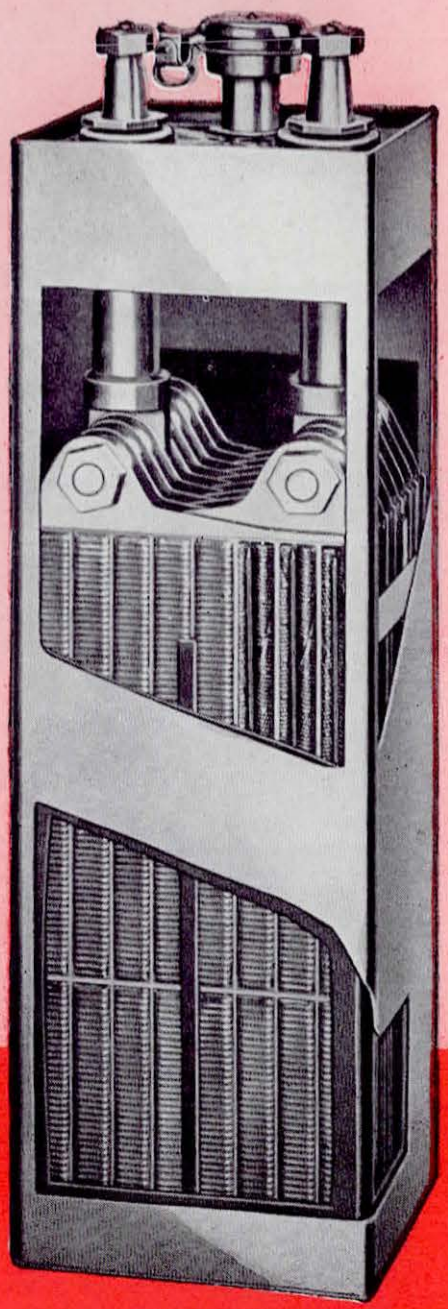
DEPENDABILITY. The name EDISON has been synonymous with dependability for over half a century. EDISON cells provide the closest approach to failure-free standby power known. They won't quit unexpectedly and are easily maintained.

INCREASED DEMANDS. Today's passenger car electrical systems carry unprecedented loads and so require bigger batteries. EDISON, the *original lightweight battery*, has higher capacity per pound . . . keeps total weight down.

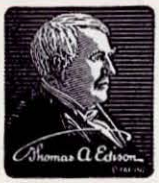
STEEL CONSTRUCTION. All EDISON cell containers, pole pieces, grids—even the tubes and pockets containing active materials—are made of rugged steel. The alkaline electrolyte is a recognized preservative of steel.

OVERALL ECONOMY. Select EDISON batteries for long-range economy because they stay on the job, out of the repair shop. They are not subject to injury by freezing, accidental short-circuiting or reverse charging.

NICKEL-IRON-ALKALINE PRINCIPLE. This original EDISON principle is chemically foolproof, electrically trouble-free. For these reasons it is the basis for long life, dependability and overall economy in EDISON batteries.



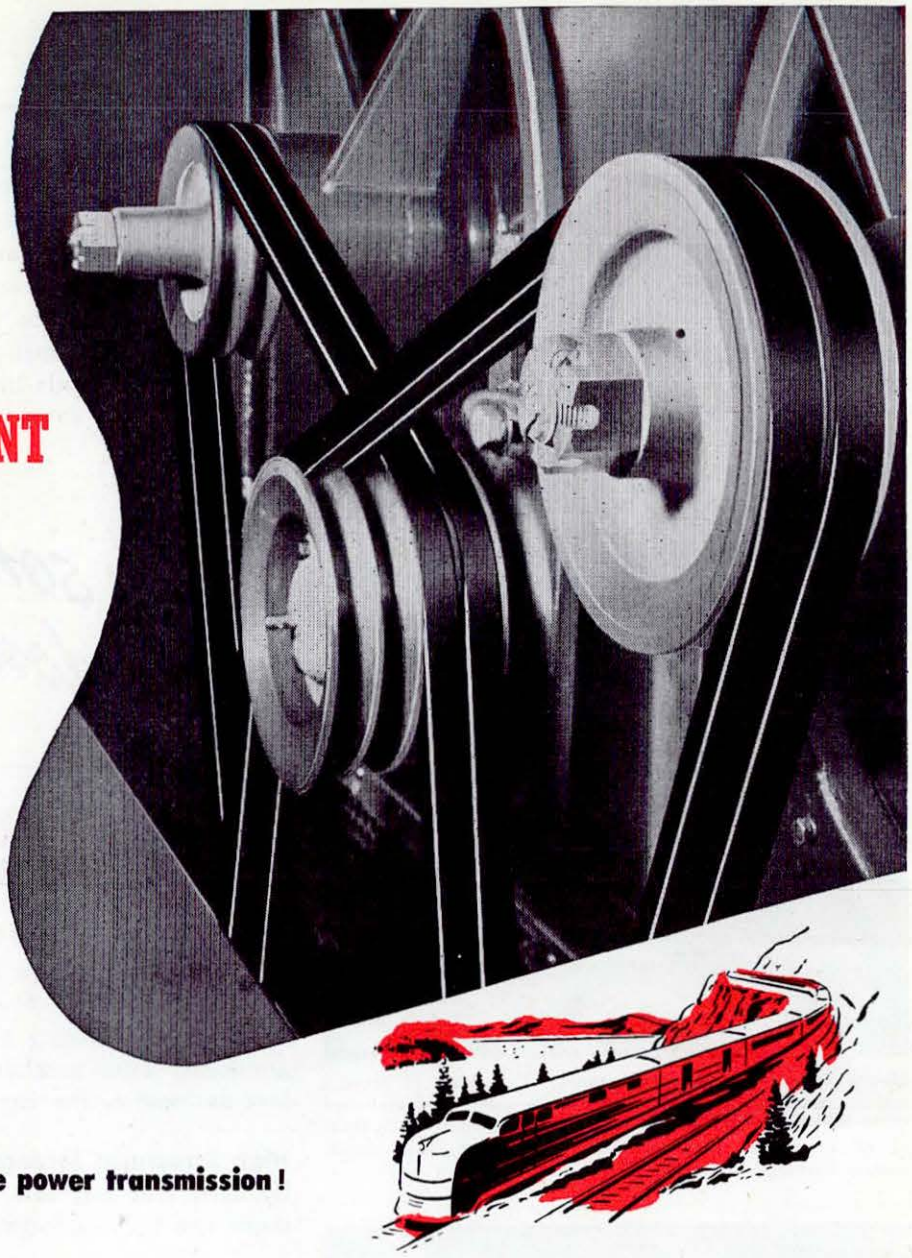
Cutaway view of A8H Edison cell at right illustrates its all-steel construction, including the tubular positive plates.



EDISON
Nickel • Iron • Alkaline
STORAGE BATTERIES

EDISON STORAGE BATTERY DIVISION OF THOMAS A. EDISON, INCORPORATED, WEST ORANGE, N. J.

ORIGINAL EQUIPMENT ON OVER 90% OF AMERICAN-BUILT DIESELS



Dayton Endless V-Belts are specified for silent, safe, positive power transmission!

"Diesel service demands Daytons!"—that's one way of putting it, for Diesel motive power calls for mighty rugged performance from modern V-Belt Drives.

Dayton performance can be measured in terms of service—over a quarter-century to railroaders—and by the remarkable records these quality V-Belts have established for long life and economical delivery of smooth, dependable power.

There's a reason for this Dayton performance, a double reason: quality and maintenance. For Dayton's 40 years of experience in natural and synthetic rubber is backed by a trained crew of Railway Field Engineers who follow equipment to points of actual railway service—checking the records and the problems involved in rugged duty—paving the way for new records for the kind of performance that's traditional with railroad men.

Take advantage of the Dayton performance potential. Our engineers will welcome your inquiries, work with you, help you select the right drive for top service on your new equipment. Write or call: *Railway Division, Dayton Rubber, Dayton, Ohio.*

Dayton Rubber *V-Belts for Railroads*

THE MARK OF TECHNICAL EXCELLENCE IN NATURAL AND SYNTHETIC RUBBER

CAR LIGHTING DRIVES · COMPRESSOR DRIVES · AIR CONDITIONING DRIVES · DIESEL DRIVES

Railway Executives:

take a new look at car floor maintenance costs

You will find it worth your while to break down car maintenance costs and determine how much you spend for floor repairs and replacement. It will probably run to a big figure. Damage to conventional floors from rough freight, nailing, decay, and materials-handling equipment is taking place every day, on every road.

now something can be done about it

Bloom Croppings—Magnet Loaded—This kind of freight dishes conventional steel-plate floors out of shape, and shouldn't be loaded at all in wood floor cars. NAILABLE STEEL FLOORING stays generally flat and nailable under impact loading.

The answer:

*NAILABLE STEEL FLOORING

You can now take a big cut out of floor repairs—and *virtually eliminate floor replacements*—by standardizing on NAILABLE STEEL FLOORING in box cars, flats and gondolas. This tougher, all-purpose flooring is built to last as long as the car, and here's why:

High Structural Strength—NAILABLE STEEL FLOORING in boxcars will not fail under fork trucks; in gondolas, there are no break-throughs from impact loading.

No Damage From Nailing—Nails really hold in NAILABLE STEEL FLOORING (tighter than in wood) yet they don't damage the floor in any way.

High Wear-Resistance—Abrasive wear from rough freight and loading equipment that destroys wood floors is negligible in NAILABLE STEEL FLOORING.

No Torn Up Plates—With no rivet heads or plate edges, NAILABLE STEEL FLOORING can't be ripped up during clamshell unloading of bulk freight.

Fork Trucks—Efficient loading demands them, but they're tough on wood floors. NAILABLE STEEL FLOORING safely takes the heaviest boxcar loading equipment.

Break down your car maintenance costs—and find out *how much* NAILABLE STEEL FLOORING can save in floor repair and replacement costs.

*PATENTS PENDING

GREAT LAKES STEEL CORPORATION

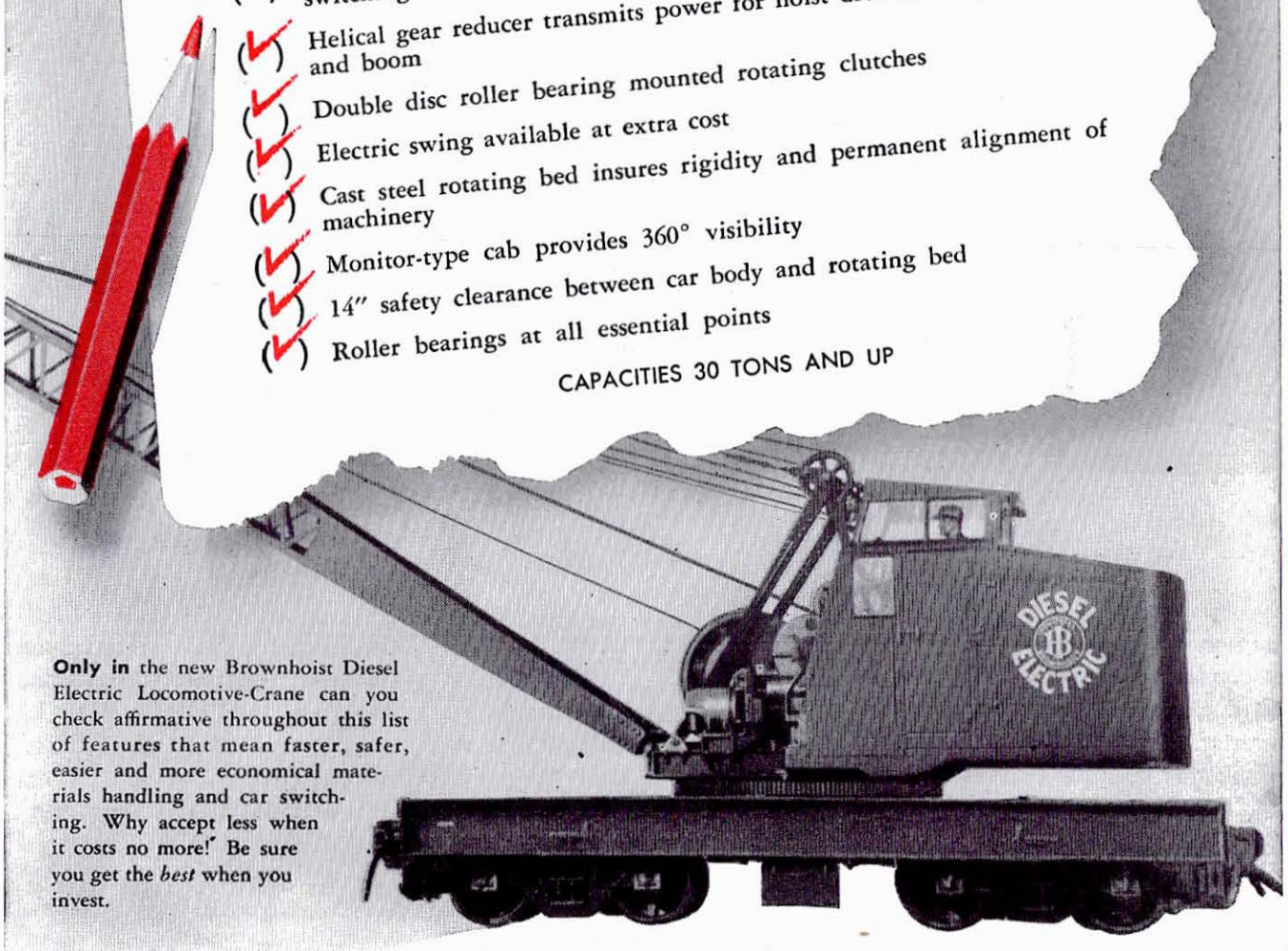
STEEL FLOOR DIVISION, PENOBSCOT BLDG., DETROIT 26, MICHIGAN

UNIT OF NATIONAL STEEL CORPORATION

Check this list of Brownhoist features... when you're thinking of a diesel electric locomotive-crane

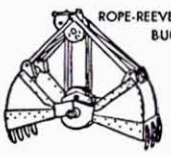
- ✓ Travel power applied direct to axles by 2 oversize inside hung spring-mounted motors
- ✓ Motor current supplied from generator direct connected to Diesel engine
- ✓ Travel speeds up to 15 MPH. for heavy duty switching service
- ✓ Helical gear reducer transmits power for hoist drums, swing, and boom
- ✓ Double disc roller bearing mounted rotating clutches
- ✓ Electric swing available at extra cost
- ✓ Cast steel rotating bed insures rigidity and permanent alignment of machinery
- ✓ Monitor-type cab provides 360° visibility
- ✓ 14″ safety clearance between car body and rotating bed
- ✓ Roller bearings at all essential points

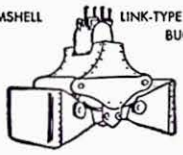
CAPACITIES 30 TONS AND UP

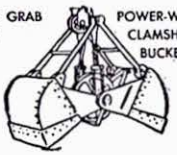


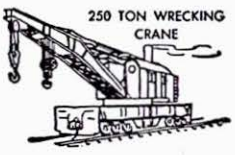
Only in the new Brownhoist Diesel Electric Locomotive-Crane can you check affirmative throughout this list of features that mean faster, safer, easier and more economical materials handling and car switching. Why accept less when it costs no more! Be sure you get the *best* when you invest.

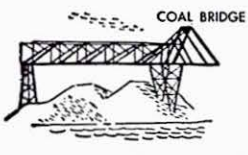
BROWNHOIST BUILDS BETTER CRANES


ROPE-REEVE CLAMSHELL BUCKET


LINK-TYPE ORE GRAB BUCKET

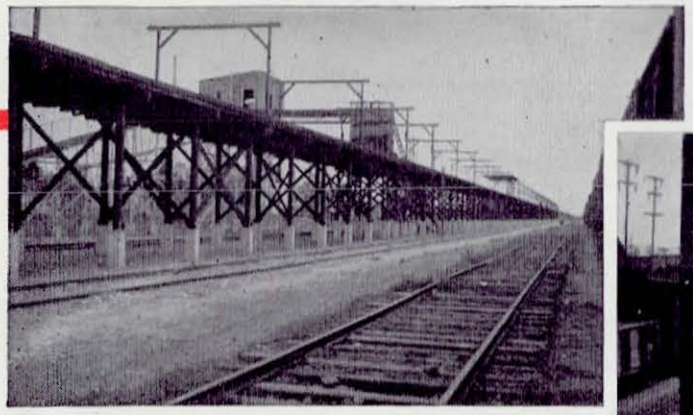

POWER-WHEEL CLAMSHELL BUCKET

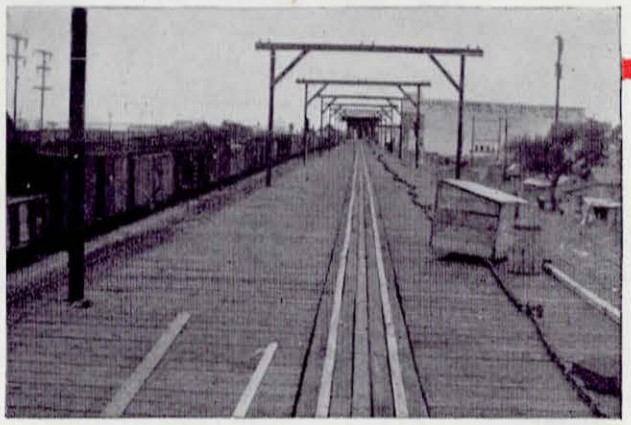

250 TON WRECKING CRANE


COAL BRIDGE

INDUSTRIAL BROWNHOIST CORPORATION • BAY CITY, MICH. • DISTRICT OFFICES: NEW YORK, PHILADELPHIA, CLEVELAND, CHICAGO • **AGENCIES:** DETROIT, BIRMINGHAM, HOUSTON, LOS ANGELES, PORTLAND, SAN FRANCISCO, SEATTLE, SPOKANE, CANADIAN BROWNHOIST LTD., MONTREAL, QUEBEC.

Ice loading dock at Harlingen, Texas handles 78 CARS at a time





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puts **SOME MAINTENANCE SAVINGS** *On ice!*

Everyone concerned with icing operations knows the punishment that the docks must take, wear . . . abrasion . . . and intermittent exposure to moisture that sets up ideal incubators for decay.

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Koppers operates 21 treating plants, strategically located for prompt, convenient, efficient service to the nation's railroads. Large yards provide ample space for storage and seasoning . . . treating is done in modern equipment, by experienced personnel . . . and half a century of service to the railroads has made us completely familiar with your methods and requirements. Let us quote on your next order.

KOPPERS

PRESSURE-TREATED WOOD

KOPPERS COMPANY, INC.

PITTSBURGH 19, PA.

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LAMSON *weather-tight* BOLTS

Seal them out!

NO COUNTER-BORING • NO SPLIT BOARD ENDS • MOISTURE PROOF

The Lamson Weather-tight Bolt is by far the most efficient bolt for wood construction yet developed.

Its patented head and shank construction eliminates the need for counter-boring, seals out moisture, prevents splitting of board ends and keeps the bolt from turning in the hole.

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For full details send for this new booklet.

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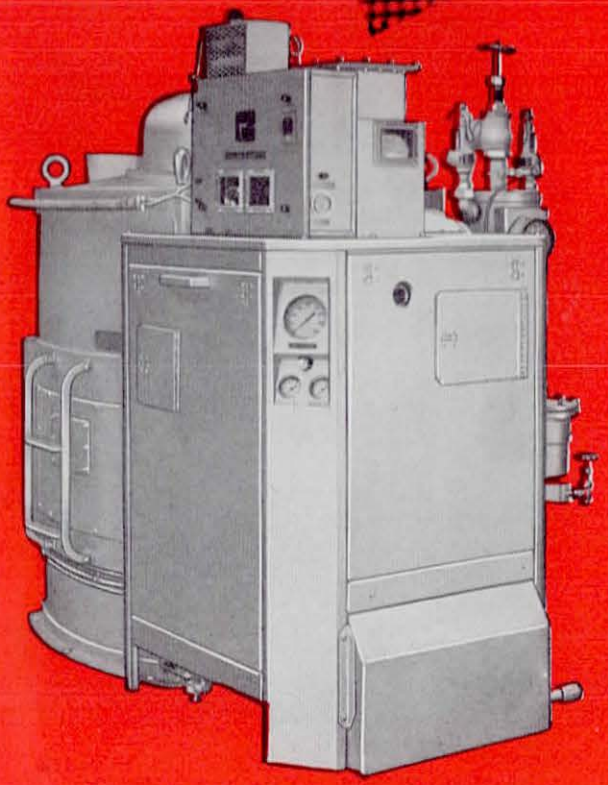
FASTENERS THAT KEEP PACE WITH RAILROAD PROGRESS

here's the answer:

to your steam generator operation and maintenance problems



VAPOR'S OK STEAM GENERATOR

A minimum of parts—a maximum of efficiency and long lasting service. Here's everything you asked for in an improved steam generator designed by Vapor engineers to meet your most exacting requirements.

OK! UNINTERRUPTED OPERATION

Supplies steam from cold water in only 1½-2 minutes. No unnecessary warmup and only a minimum of current—5.6 h.p. for 3600 lbs. evaporation. The simple "SERVO" control maintains proper correlation of air, oil and water for a cleaner fire without soot thruout the entire range of operation. Improved performance through advanced Vapor engineering keeps boilers operating at top efficiency without costly "time out" for repairs. Typical Vapor design places the washout piping and valves in the rear of the boiler away from operating parts so that only the washout man touches them.

OK! FEWER PARTS FOR EASIER MAINTENANCE

The elimination, simplification and reduction of parts to an absolute minimum affords quicker, easier maintenance of the boiler. Parts easily affected by foreign matter have been eliminated through engineering methods developed in collaboration with railroad mechanical departments. Controls, valves and piping have been reduced to a minimum, resulting in improved efficiency, for simpler operation and maintenance. Send for bulletin, "Here's the Answer"

VAPOR HEATING CORPORATION 80 EAST JACKSON BLVD., CHICAGO 4, ILLINOIS

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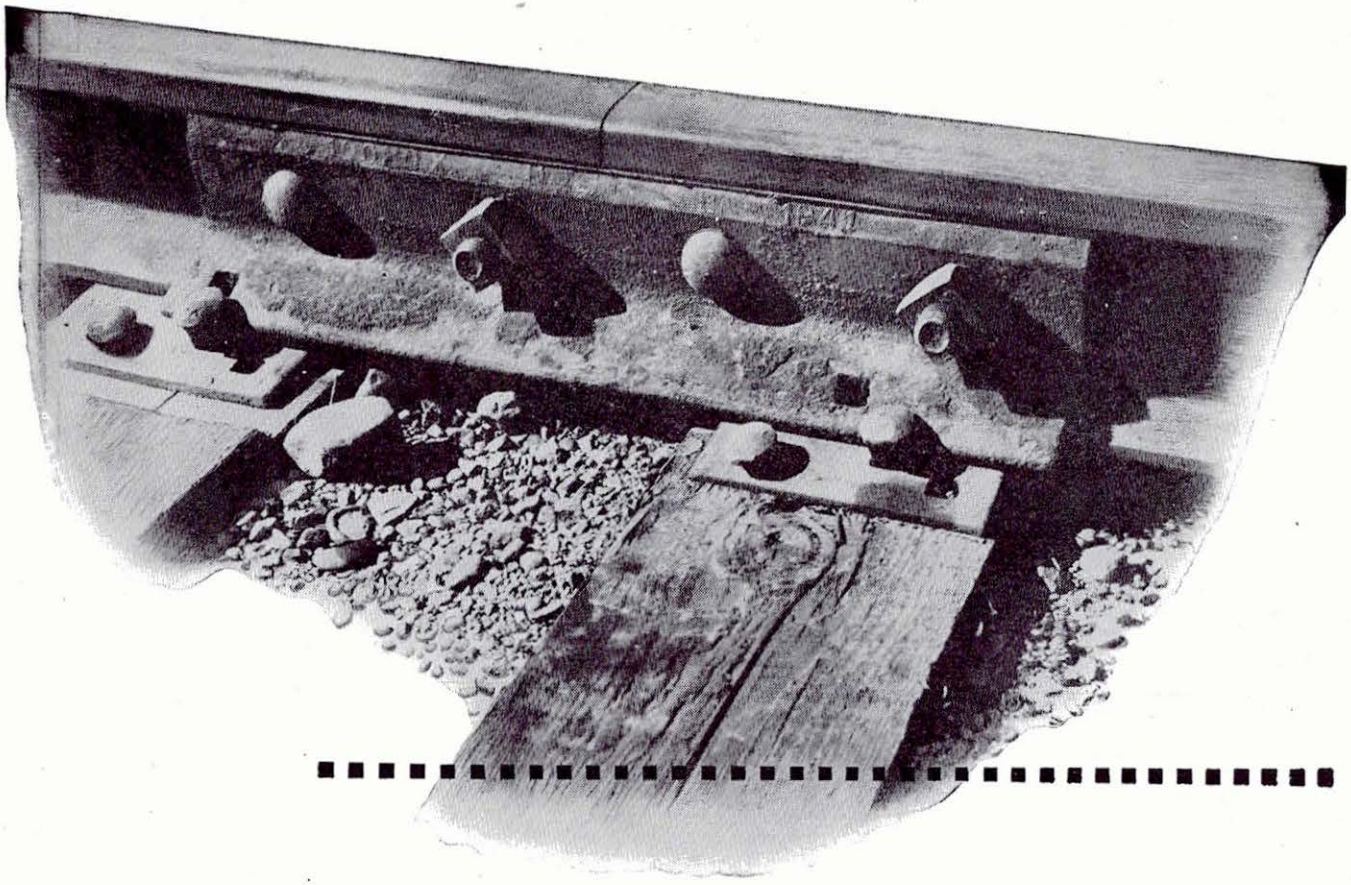
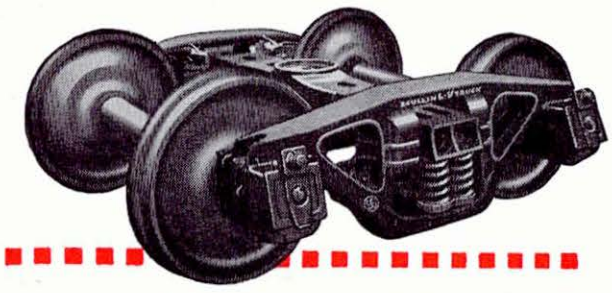
THIS is where destructive bounce and sideway begins...



AND THIS is the SCULLIN L-V TRUCK

LATERAL VERTICAL
L-V
CUSHIONED MOTION

that completely cushions both lateral and vertical motion before it can cause damage... makes high speed safe for lading, cars and track.



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SCULLIN STEEL CO.

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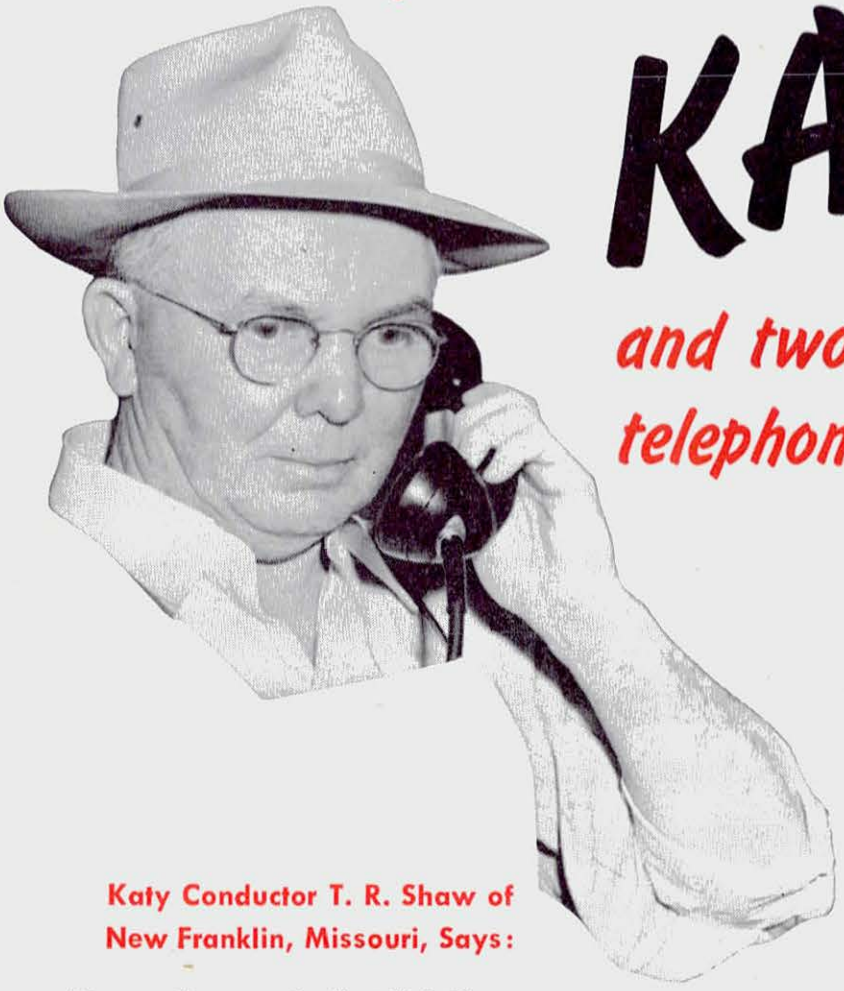
Is now saving time and money for the KATY and two-way radio telephones make jobs Easier!



Katy Conductor T. R. Shaw of New Franklin, Missouri, Says:

"In my 47 years of railroadin', I've never seen a better time saver than Bendix train radio. Take out radio and I'd have to do the braking—in case of trouble—by bleeding the air line from the rear—every freight conductor hates to take that chance. Two-way radio is good for the freight conductor in hundreds of ways. It saves plenty of steps—safer, too. Sure, I'm all for it."

M-K-T KATY RAILROAD MISSOURI-KANSAS-TEXAS

Bendix two-way radio can provide more efficient operation on your railroad, too—it makes jobs easier and saves you time and money. Write, wire or phone for full information.

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BENDIX RADIO DIVISION
OF BENDIX AVIATION CORPORATION
BALTIMORE 4, MARYLAND

Bendix AVIATION CORPORATION

1012 Baltimore Ave., Kansas City 6, Missouri • 188 West Randolph St., Chicago 1, Illinois • 1239 Airway, Glendale 1, California

Save motive power

and INCREASE PASSENGER COMFORT with

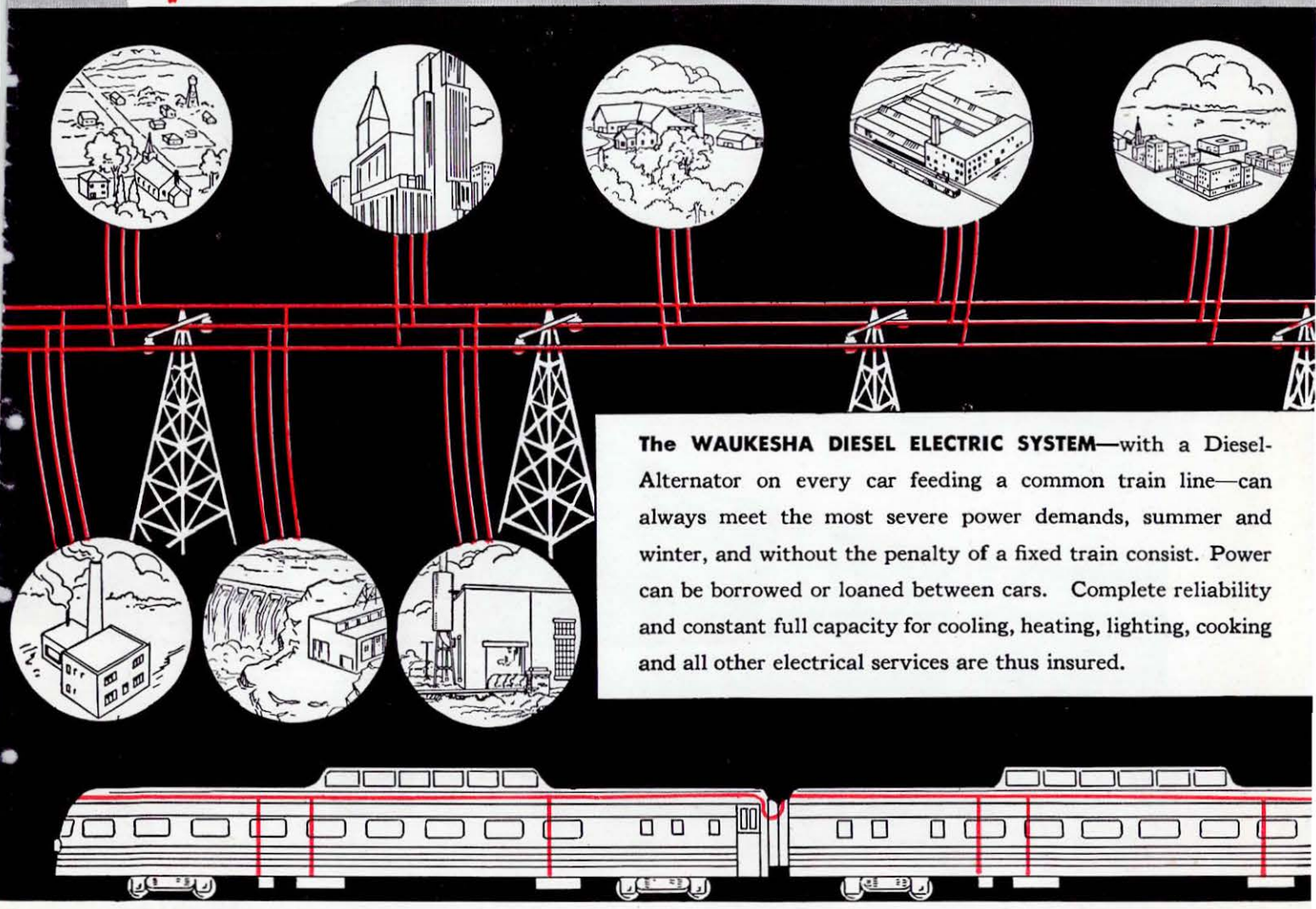
WAUKESHA

Diesel ELECTRIC SYSTEM

. . . Gives Every Train Its Own Power Network

GREATER

- ✓ Simplicity
- ✓ Reliability
- ✓ Economy
- ✓ Profits



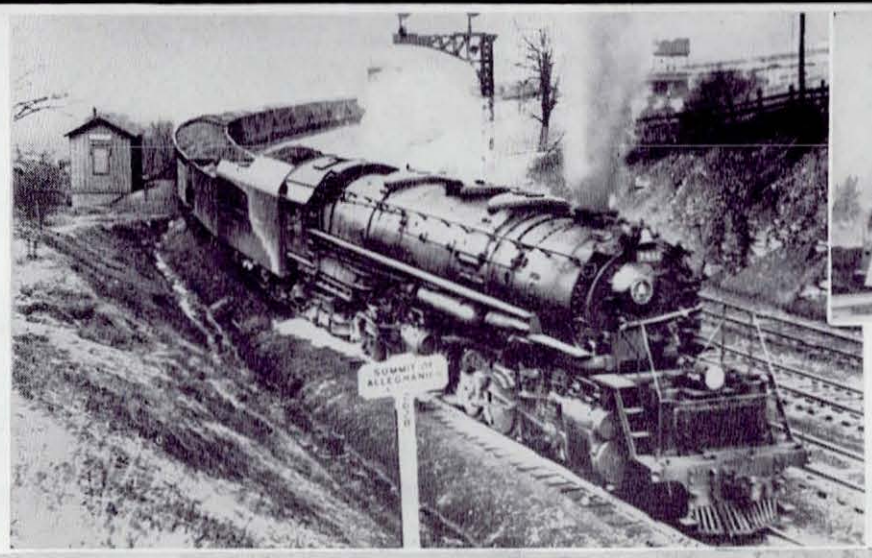
The WAUKESHA DIESEL ELECTRIC SYSTEM—with a Diesel-Alternator on every car feeding a common train line—can always meet the most severe power demands, summer and winter, and without the penalty of a fixed train consist. Power can be borrowed or loaned between cars. Complete reliability and constant full capacity for cooling, heating, lighting, cooking and all other electrical services are thus insured.

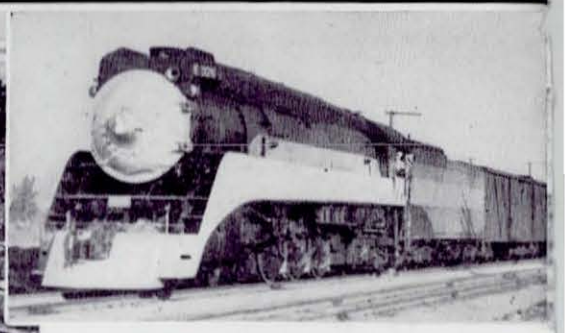
Railway Division, **WAUKESHA MOTOR COMPANY,** *Waukesha, Wis.*

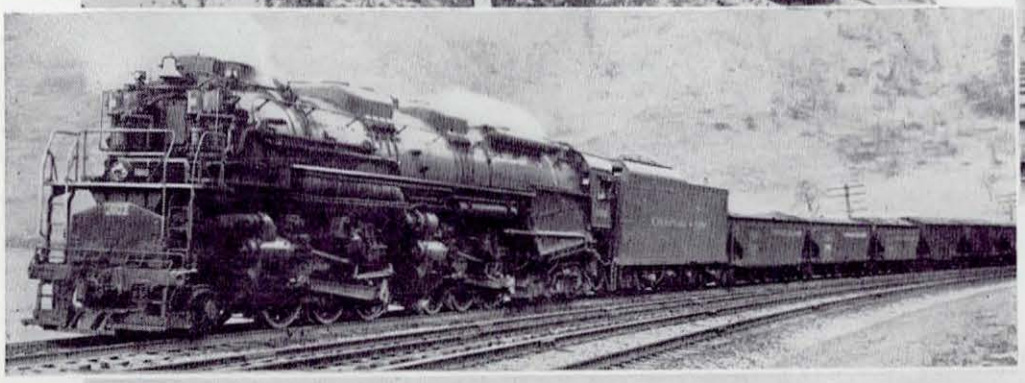
Largest Builders of mobile, engine-driven Refrigeration and Generator Equipment

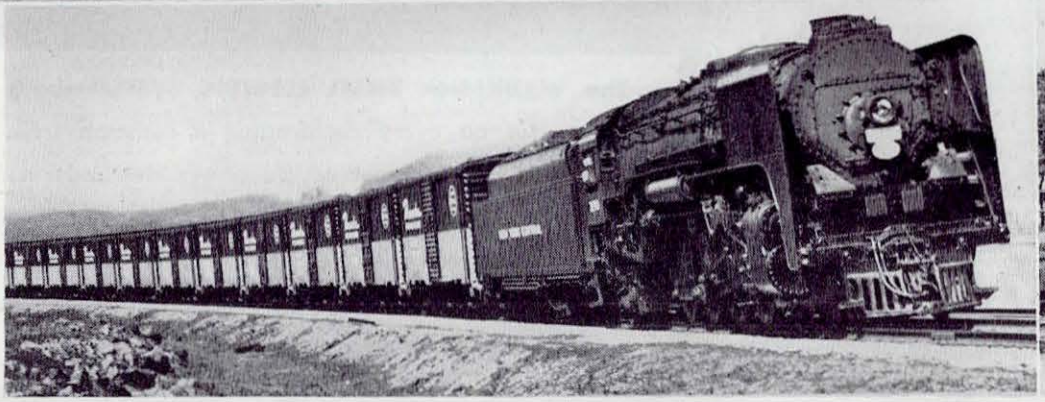
STEAM POWER

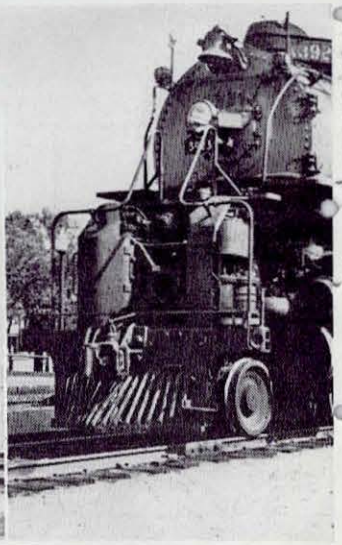
It hauls 7 times as many ton-







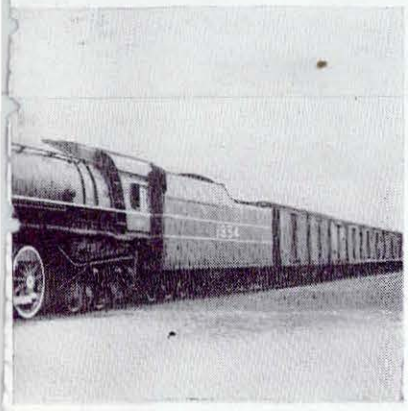




FLANNERY BOLT

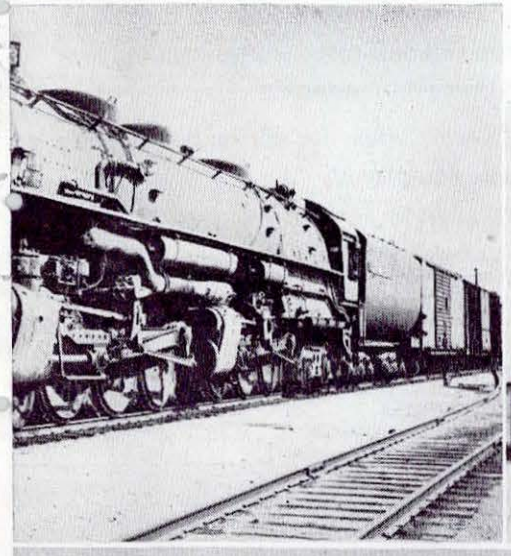
Tops IN SERVICE

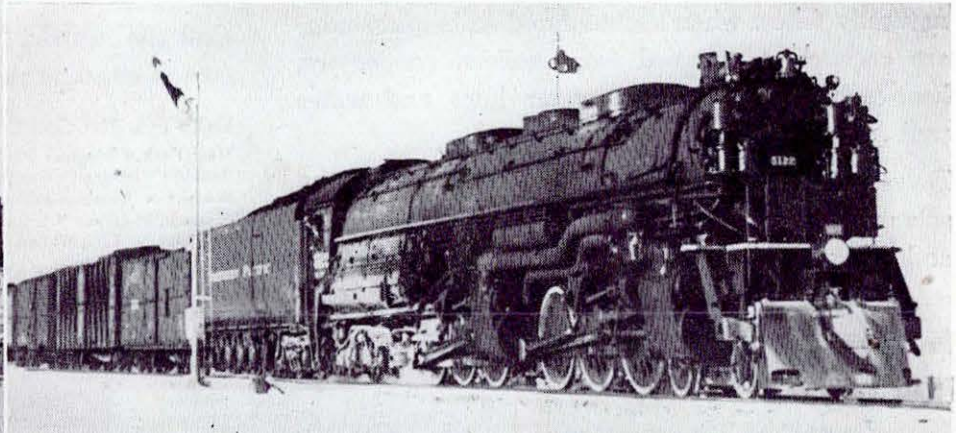
miles as all other types of power



With longer locomotive runs and much greater locomotive miles per day, Steam Power should always get the high standard of maintenance provided by Flannery Flexible Staybolts for Safety, Reliability, High Availability and Economy.

All of the Locomotives shown on this page, and many thousands of others, are equipped with Flannery Flexible Staybolts.





COMPANY **BRIDGEVILLE PENNSYLVANIA**

DOWELL

SUBSIDIARY OF THE DOW CHEMICAL COMPANY

Fire tube boilers cleaned quickly

—designed operating efficiency restored!

The Dowell chemical method of cleaning fire tube boilers has grown steadily in acceptance by operating engineers who have found it a rapid, safe and effective cleaning technique. Reduced operating costs naturally follow when accumulated scale and sludge are chemically removed from boilers, condensers, heat-exchange equipment, water lines and water wells.

Dowell equipment is used to fill the unit with liquid solvents designed to dissolve and disintegrate scale and sludge deposits. Dowell engineers supervise the entire cleaning operation—they are experienced in practical methods, know which solvents to use, and bring with them special truck-mounted tanks, pumps, mixers, heaters and control equipment.

Call the nearest Dowell office for estimates of the cost of cleaning your equipment.

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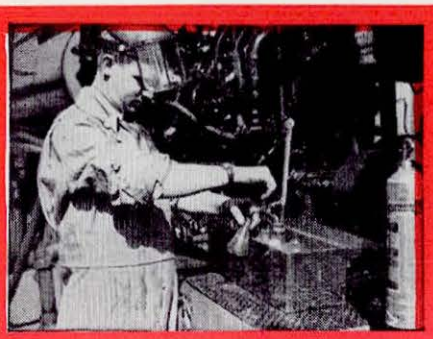

Dowell service is supervised by trained engineers using carefully selected liquid solvents and special mobile equipment.

DOWELL

FOR INDUSTRIAL CHEMICAL SERVICE

Vol. 124, No. 26 June 26, 1948

RAILWAY AGE

With which are incorporated the Railway Review, the Railway Gazette, and the Railway-Age Gazette. Name Registered in U. S. Patent Office.

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Published each Saturday by the Simmons-Boardman Publishing Corporation, Orange, Conn., with Editorial and Executive Offices at 30 Church Street, New York 7, N. Y., and 105 W. Adams Street, Chicago 3, Ill.

Washington 4, D. C.: 1081 National Press Building—Cleveland 13: Terminal Tower—Seattle 1: 1033 Henry Building—San Francisco 4: 300 Montgomery Street, Rooms 805-806—Los Angeles 14: 530 West 6th Street—Dallas 4: 2909 Maple Avenue.

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H. E. McCandless, Circulation Manager, 30 Church Street, New York 7.

Railway Age is a member of Associated Business Papers (A. B. P.) and Audit Bureau of Circulation (A. B. C.) and is indexed by the Industrial Arts Index and by the Engineering Index Service.

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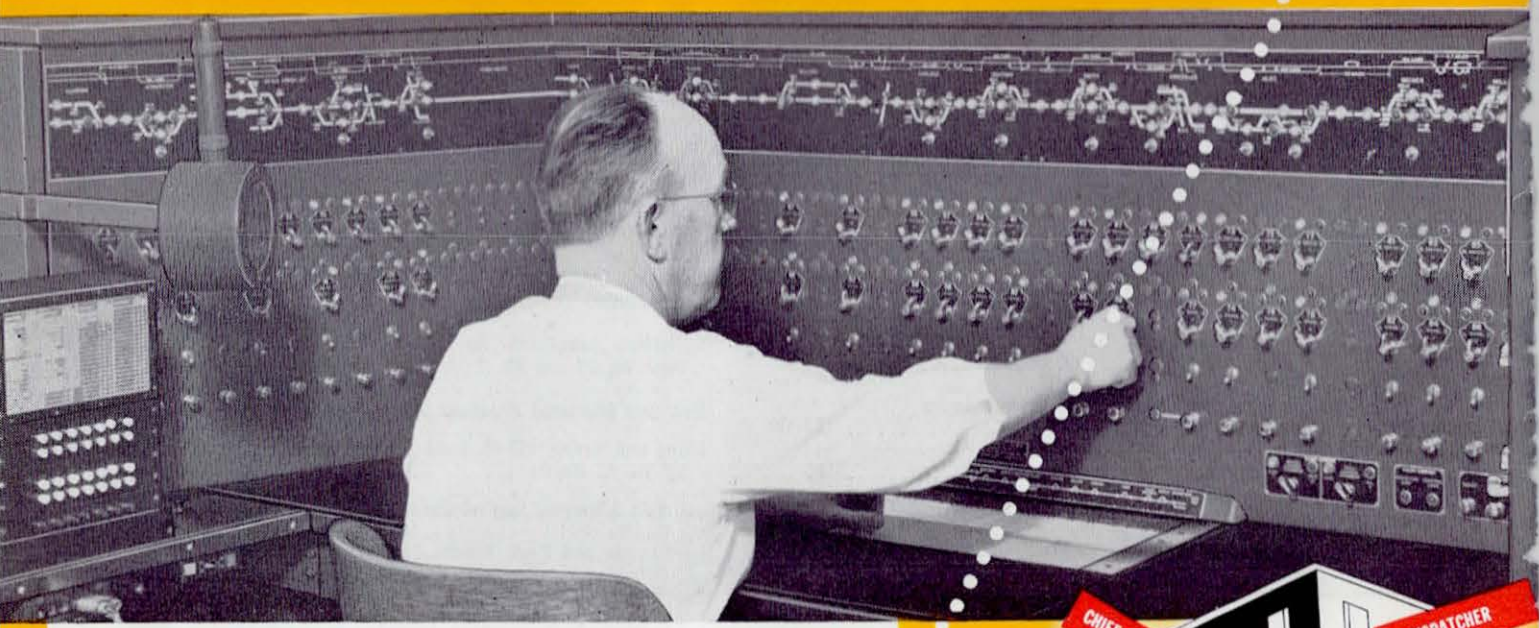
"UNION" C.T.C. ON THE C&EI

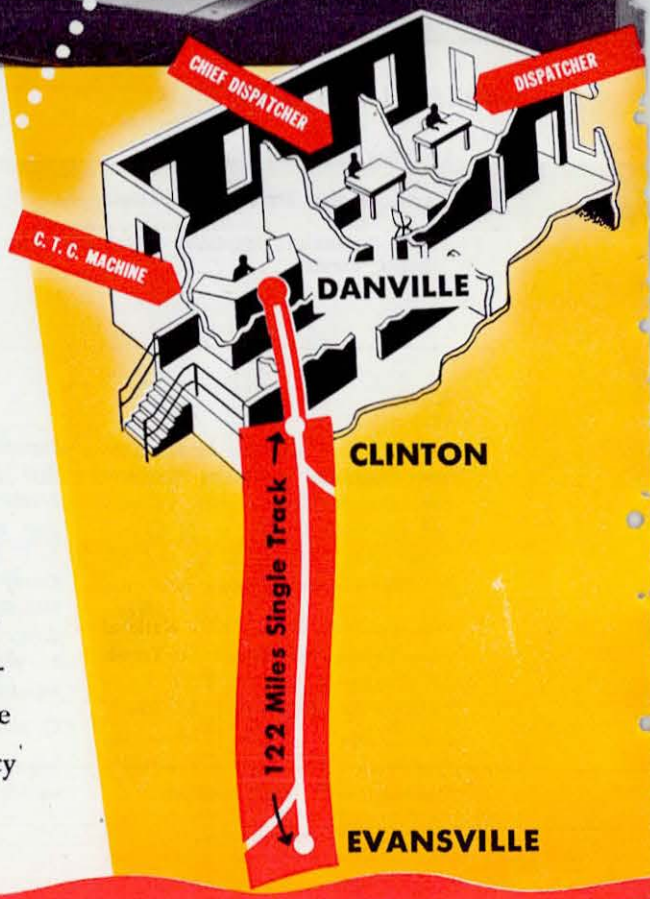
concentrates control.....



• at Division Headquarters

Recently the Chicago & Eastern Illinois Railroad installed "Union" C.T.C. on the 122-mile single-track portion of their Chicago to Evansville line. The control machine is located at Danville, Illinois, *division headquarters* . . . even though the nearest end of the controlled territory is approximately 40 miles distant.

Results—passenger trains, heavily bunched at certain hours, are handled without congestion; important freight traffic is expedited . . . and, *concentration of control* at division headquarters permits the C. & E. I. to obtain *maximum* operating efficiency at lowered costs.



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SWISSVALE PENNSYLVANIA

NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO

WEEK AT A GLANCE

TWO CONVENTIONS IN CHICAGO: Complete programs appear herein (page 96) for the annual gatherings of the Purchases & Stores Division and Mechanical Division of the Association of American Railroads, both scheduled for June 28-30 at Chicago.

KEEPING CARS IN SERVICE: Revisions recently effected in the A.A.R. Wheel and Axle Manual, reflecting improvement in the metal structure in the rim of the chilled car wheel, are discussed in one of our feature articles, while another (page 90) describes the functions and accomplishments of the seven-man mechanical inspection force by which the A.A.R. keeps tabs on freight-car condition and repair practices throughout the country. As Car Service Division Chairman Gass points out in his monthly letter (noted in our news pages) car shortages continue, despite the favorable influence of technological developments of this nature on the availability of the cars in service. Equipment on order on June 1, also reported in the news columns, included over 127,000 freight cars, more than a year's production at the present rate.

NEW STYLES IN STOREKEEPING: Stores department people have a wide range of subjects under consideration at Chicago. Two of them are developed in pictures and text in this issue—in the article (page 116) describing the Illinois Central's experience at Paducah with mechanized handling of materials in unit loads; and in the pictorial presentation of some of the new techniques which the wide employment of Diesel-electric locomotives has inspired.

LUBE LAB: A description appears in this issue (page 94) of the new research laboratory at Indianapolis for studies, under A.A.R. direction, of the performance of lubricants and car journal parts at various temperatures, the purpose of which is to find out more about why hot boxes occur and what can be done—so far as specifications of materials and parts go—to reduce their frequency.

"UNIT LOAD" IN BRIDGE-BUILDING: When the North Western undertook to renew a bridge at Sheboygan, Wis., the most practicable procedure turned out to be shop assembly of the new 162 ft., 280,000-lb. deck plate-girder span for installation as a unit. The illustrated article on page 110, by the road's engineer of bridges, A.R. Harris, outlines the procedure by which this job was carried through to completion.

VOCAL "NUMBER GRABBING": A brief explanation of the New Haven's Cedar Hill installation of a telephone-operated voice-recording apparatus for listing car initials and numbers in trains being made up for departure appears herein. This application of the Soundscriber has been found to promote accuracy, to increase the amount of information transmitted to the terminal headquarters, and to speed up the arrangement of cards and waybills in train-check order (which in turn speeds the movement of trains out of the yard).

CEMENT CASE CONSEQUENCES: When the Supreme Court recently upheld Federal Trade Commission policy, applied to cement producers, that would outlaw pricing practices whereby shippers reached distant markets by absorbing part of the freight charges, grave and fundamental changes in the nation's highly integrated commercial and transportation machinery became possible. What this policy could mean to the railroads is considered this week in an article by Leon Leighton (page 120) and in an editorial.

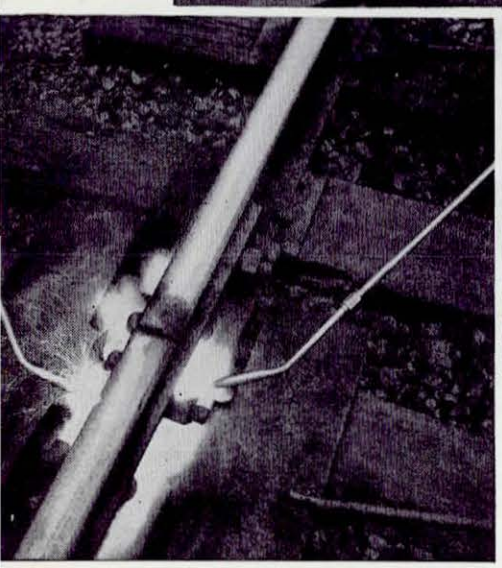
CAPITALIZING ON CHANGES: Shifts in railroad traffic patterns are going on all the time, of course, and some of them result in rather important gains or losses for individual carriers. But the trend of these changes in the country's economic geography generally is dictated by such basic considerations as availability of raw materials, accessibility of markets, stability of labor supply, and development of new materials and processes. The determined efforts of an active industrial development department, however, can do much to insure that the natural and human resources of the localities served by each railroad are brought to the attention of the right people at the right time. The importance of the work of this department is emphasized in our leading editorial.

PROGRESS IN CONGRESS: The Congress that adjourned last Sunday passed some legislation the railroads wanted—such as the Bulwinkle-Reed Act, the "Mahaffie Act," and the cut in the unemployment insurance tax. It did not pass some of the legislation the railroads did not want passed—the St. Lawrence ditch bill, for example. A review of what was accomplished in the session appears on page 122. One measure that went to the White House this week has led to considerable speculation as to its possible effect on the railroads; i.e., that section of the "peacetime draft" act which gives the President complete authority to allocate steel and enforce priorities for "national defense." Wise use of this power will call for exceptional restraint and recognition of the needs of civilian services, especially the railroads.

EXPLORING EXPENDITURES: Data worked up by the Interstate Commerce Commission's statisticians, summarized on page 114, reveal considerable differences in proportionate expenditures by the large railroads for traffic and general expenses and for payments for services by non-employees. The Chesapeake & Ohio rates highest in both categories on a percentage-of-revenues basis. The current "Monthly Comment" also reports the Class I roads' estimates of capital expenditures for equipment and roadway for this year's first nine months, which aggregate $953 million, or 69.3 per cent more than the equivalent figure for last year.

Avoid PERMANENT WAVES

by Flame-Straightening Joint Bars



Using standard heating blowpipes with extension tubes, two operators simultaneously flame-straighten both bars.

This efficient flame-straightening setup permits operation of two blowpipes by one operator.

Permanent waves occur in track when rail ends are held below surface by bent and worn joint bars. In most cases deformed bars can be reclaimed in track by Oxweld's flame-straightening method. The center of the bar at the junction of web and base is quickly heated to a red heat. As it cools, contraction straightens the bar and allows the sagging rail ends to return to a more nearly true surface.

This economical process for flame-straightening joint bars results in: LONGER SERVICE LIFE FOR JOINT BARS—LESS WEAR AND TEAR ON TRACK AND ROLLING STOCK—SMOOTHER RIDES FOR FREIGHT AND PASSENGERS. It also reduces the amount of welding to build up rail ends.

Each year railroads are flame-straightening thousands of joint bars by this Oxweld method. If your maintenance-of-way operations do not include this modern process, ask your Oxweld representative for details.

THE OXWELD RAILROAD SERVICE COMPANY

Unit of Union Carbide and Carbon Corporation

UCC

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In Canada:

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SINCE 1912—THE COMPLETE OXY-ACETYLENE SERVICE FOR AMERICAN RAILROADS

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THE CHANGING ECONOMIC MAP— ARE THE SHIFTS HELPFUL OR HARMFUL?

Comparative figures on prewar and postwar railway traffic, by regions and by individual railroads, indicate that a tremendous change is taking place in the country's economic geography. This shift is not coming about by the painful "drying up" of production and transportation anywhere, but by much greater expansion of production and transportation in some sections than in others. Production and transportation have increased everywhere—so no area can be said to be "slipping." But is the expansion which is occuring doing so where the expenditure of labor and capital will yield the maximum product? That is a large and important question, not only for the railroads, but for all interests concerned with national and local economic welfare.

Such shifts in the location of predominance in production are induced only partially by the distribution of national resources—they are, in greater or less degree, also "man-made." For example, it was Yankee ingenuity far more than water power which gave New England its early industrial predominance on this continent—and it was the development of a similar spirit of enterprise in other areas which later induced a parallel industrial growth in regions far in the hinterland. Human resources are as important a factor in industrial location as natural resources—perhaps even more so.

Is it, primarily, the inalterable location of natural resources or the uneven distribution of promotional zeal which accounts for the fact that, as railroad figures of net ton-miles show, traffic and production increased from 1940 to 1947 by 50 per cent in the Eastern district, 61 per cent in the Pocahontas region, 83 per cent in the Southern region and more than 93 per cent in the Western district? It would be foolhardy for anyone to try to answer that question without the possession of considerably more information than is now available. But it would be equally foolhardy for economic interests, including the railroads, in any area not to look hard for the answer.

Wide variations in the rate of freight traffic growth are observable, not only as between different areas of the country, but as between different railroads in the same area. For example, among the larger railroads in the Great Lakes region there is, comparing 1947 with 1940, a range of increase in net ton-miles from 24 per cent, by the railroad with the smallest increase, to 93 per cent, by the railroad with the largest increase in this region. In the Central Eastern region the range is from 34 per cent to 90 per cent. In the South the range is from 52 per cent to 150 per cent; in the Northwest, from 46 per cent to 80 per cent; in the Central West, from 81 per cent to 142 per cent; and in the Southwest, from 96 per cent to 174 per cent.

It is evident from these figures that location in an area where the rate of growth has been modest by no means condemns a railroad in that district, or the industries and communities it serves, to an equally modest ratio of improvement. Conversely, location in an area with a high ratio of growth affords no guarantee either to a railroad or to its communities and patrons that they are going to enjoy, without effort, a parallel improvement. Some of the gains shown are, probably, fortuitous —e.g., explainable by the arbitrary location of war plants in some sections and continuance of such plants in peacetime production.

It is certainly not possible, on the other hand, to account for all these increases so simply. Some of them may arise less from the *physical* factor of the unusual location of war plants than from the *psychological* factor that the presence of these plants engendered in local businessmen a spirit of experimental enterprise. Such business people who, before the war, saw their prosperity only in terms of some predominant local crop or raw material have now learned that there are many other ways to make a dollar, and they are proceeding to do so.

When innovation and enterprise are "in the air" as much as they are now—at least in many places—the business or civic interests that are not fully informed and alert as to what is going on and how it may affect them, perhaps adversely, are taking unnecessary chances. The present and the immediate future appear to offer unusual opportunities for railroads with strong industrial development departments—particularly if developmental efforts are adequately related to railroad publicity and advertising, especially in the newspapers and the industrial press which serve the economic concerns of the audience which the railroad is seeking to interest in its territory. No railroad can successfully promote such a program if communities local to its lines do not know what is afoot, and advertising in on-line papers is indispensable in reaching these communities.

Only if each territory, and the railroads which serve it, will ascertain and exploit to the full its advantages for industrial development can there be any assurance that the redistribution of production now going on will fall to the most fruitful locations. When production is improperly located with respect to raw materials, labor supply and markets, everybody loses. Areas more suited to the product suffer the denial of industrial activity to which they have a sound claim. The consumer loses by having to pay more for what he buys. The business itself cannot thrive in a poor location as it could expect to in a more favorable one. The present is, therefore, a bad time for a railroad or any other business with a real light to show to be hiding that light under a bushel.

MECHANICAL INSPECTORS LIFT CAR MAINTENANCE STANDARDS

An important phase of Association of American Railroads Mechanical Division activity which will be reported briefly at the annual meeting in Chicago, June 28-30, is the work of the Mechanical Inspection Department. As described in an article elsewhere in this issue, the seven-man force of trained car men included in the department is employed exclusively visiting freight-car inspection and repair points throughout the country, working with individual railroads and submitting reports of actual on-the-ground conditions. These reports, in the aggregate, are invaluable in raising equipment standards and improving operation.

While inspectors, with the training and experience of general car foremen, are employed more or less as policemen to discover and help correct violations of A.A.R. interchange rules, billing rules, equipment standards and regulations, they are also teachers and instructors. In the latter capacity, the mechanical inspectors call on their long experience in the practical application of A.A.R. rules to clarify new rules and interpretations, as well as to explain other rules or practices which may be misunderstood. This instruction is given whenever requested, or necessary, to car supervisors and inspectors, especially those who may be newly appointed. Older men also sometimes get fixed erroneous ideas which have to be corrected.

One thing strongly emphasized in the work of the A.A.R. mechanical inspectors is direct action and the elimination of red tape. All defects found are discussed with the local supervision first and, whenever possible, are corrected on the spot. They are subsequently gone over with the chief mechanical officer of that particular road, or his representative. The defects are also reported to Mechanical Division headquarters at Chicago and any conditions requiring corrective action are circularized to member roads and all car owners. No unnecessary delays are permitted, and this is particularly true of adverse factors affecting railway service, such as the loading of defective equipment, delay of loaded and foreign cars on account of being in bad order, and the approval of cars for service when in unsatisfactory mechanical condition.

The A.A.R. men are specialized to the extent that one inspector may be best informed on wheel-shop practice, one on welding reclamation and another on lubrication, but each has a sufficiently well-rounded experience to go to an outlying inspection point or repair track and report on all phases of the work. That means intimate acquaintance with multitudinous rules, regulations and standards and such things as the proper use and

maintenance of boring mills, axle lathes and wheel presses, satisfactory welding procedure and heat treating practices, brake-beam repair and testing, air-brake inspection and maintenance, lubrication, and many others. It is a tribute to the constructive work of these inspectors that they are generally welcomed at individual railroad car-inspection and repair points, even when making surprise checks, and that they are frequently invited to go over an entire system.

P. & S. AND MATERIALS HANDLING

The business of the railroads, in the main, is handling materials—other people's as well as their own. As they reduce the cost of handling these materials, more money is left for plant improvements and for the security holders. Materials handling was a live subject at the meeting of the Freight Station Section in May, and also at the recent gathering of the Superintendents' Association. The Purchases and Stores Division of the Association of American Railroads, at its 22nd Annual Meeting, June 28-30, also will devote considerable time to that topic. In addition to a fine report on the subject by the committee assigned to it, there will be an address by B. T. Adams, general storekeeper of the Illinois Central, on "The Importance of Materials Handling." An article in this issue on mechanical handling at Paducah gives evidence of Mr. Adams' recent experience in this field.

It is appropriate that the P.&S. Division should be greatly interested in handling of material, since the stores department has to deal physically with close to $2 billion worth of material yearly—which raises the question whether it would not be helpful for the stores department to have on its payroll an officer whose sole function would be to improve materials handling. (The materials handling committee of the Superintendents' Association has recommended a materials-handling specialist for the stations department.)

This officer would not only supervise handling in the various stores on his own railroad, but would also familiarize himself with the practice of other railroads. He could help the railroad's suppliers in the problems involved in shipping unit loads of supplies. A look at a freight station or a manufacturing plant once in a while would give him ideas for improved methods. There are many savings to be made, and if this officer should make a few, such as the P.&S. Division report of Committee Subject 15 reveals, he would pay his own salary, and for the equipment involved as well.

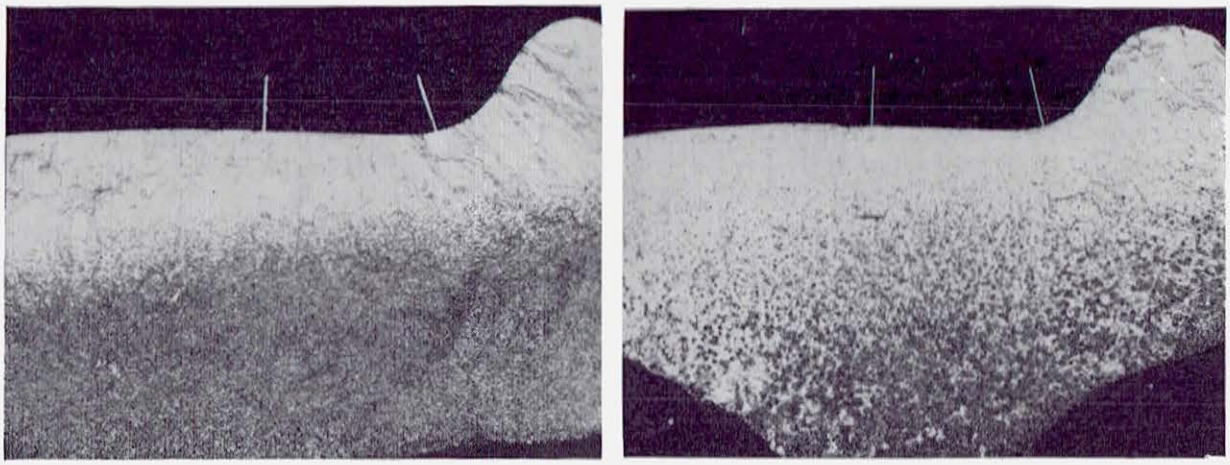
SEEKING RUIN OF MOST LONG-HAUL TRAFFIC

The Supreme Court of the United States, in the so-called "Cement Case" (*Railway Age*, May 1, page 55), upheld a "cease and desist" order of the Federal Trade Commission, in which it called into question the absorption of freight charges, by a shipper, a practice which enables a distant producer to offer his product to a consumer at a delivered price approximating that of a nearby producer. The court's decision was by no means crystal clear—that is, it leaves in doubt whether it opposes all absorption of freight charges or only that which is done systematically or by agreement. The danger to the railroads inherent in this litigation was pointed out in a two-part article in this paper in our December 20 and 27, 1947, issues—the author, Leon Leighton, being a lawyer who has made an intensive study, not only of the litigation itself, but also of the probable effects on the railroads and industry, if all absorption of freight charges to enable producers to compete in distant markets were forbidden.

These articles, published six months ago, were the first comprehensive and adequate warning to appear against the disruptive and disastrous objective which, it is evident, the F.T.C. had in mind —namely the regionalization of production and distribution in this country. Nationwide markets made possible by the kind of price-making the F.T.C. opposes are the "secret" which makes mass production possible, and which thus have largely brought about America's high standard of living and world leadership in production. Of course, these nationwide markets are the mainstay of the railroad business, and to wipe them out would be a disaster for the railroad industry.

The Supreme Court decision did not make it clear that it agreed with the extreme Federal Trade Commission view, but neither did it remove all question that it had done so. As matters stand, since the Supreme Court shows no disposition to clarify this issue and the Circuit Court of Appeals at Chicago is interpreting the decision in terms of the extreme F.T.C. position, Congress must be called upon to set these doubts at rest. All industries with nationwide markets—and the railroads serving these industries—are in jeopardy. The essentials of the situation are outlined briefly in a short article by Mr. Leighton elsewhere in this issue.

Leaders of the railroad industry need to be fully informed about this situation, because the awakening of shippers and public to this grave national peril will without doubt require the active cooperation of railway executives, railway lawyers, and traffic and public relations officers.



This comparison of the old (left) with the new chilled car wheel indicates the improvement in the distribution between the chilled metal (solid light zone), the strength-possessing gray iron (dark section) and the mottle or speckled zone between these two

EVOLUTION IN CHILLED WHEEL RIMS

Failure of wheels cast in 1944 two-thirds less than the average of those cast in 1930 to 1939 for comparable service

New illustrations in Supplement No. 1 to the Association of American Railroads' Wheel and Axle Manual, effective January 1, 1948, show a revision in chill formation in chilled car wheels and reflect the improvement of metal structure in the wheel rim, especially the mottled iron—which is the metal between the chilled or light portion of the tread and the gray iron or dark portion. These revisions in chill and mottle formation were accomplished through many years of research on the part of the Association of Manufacturers of Chilled Car Wheels and its member companies. The results are not just in the changed appearance indicated in the illustrations but rather in an increase in strength and an improved safety record.

Advancements in chill control, wheel design, manufacturing processes, and testing procedure by companies represented in the association, during the past eight years, have resulted in a spectacular improvement in wheel safety. Failures reported to the Interstate Commerce Commission during the first 300,000 gross ton-miles of service of wheels cast by these companies in 1944 show a reduction by two-thirds as compared with the average record in the same period of service of wheels cast in the years 1930 to 1939.

Wheels cast since 1944 have not yet been in service long enough to permit making comparisons, but the upward trend in strength and safety is indicated by further improvements and such preliminary data as are available.

Another indication of greater wheel tread strength resulting from improved chill control, combined with improvements in design, is the increased resistance to impact blows on the outer portion of the rim. This was developed in tests in which a 27,000-lb. hammer was dropped on a striking key set on the wheel tread one inch from the outer rim face. Changes in design to the bracket-type wheel, followed by an increase in rim thickness and successive changes in chill specifications at A.M.C.C.W. plants, have increased impact strength to a point where the rim with the illustrated improved type of chill stands twice as many blows from a greater height than the rims of wheels normal for the period prior to 1940.

Brinell Hardness Test

These improvements in the impact strength of the wheel, as shown in the tests, and consequently in the strength and safety of the wheel in service, were obtained in several ways. Progressive changes in design have improved the balance of the wheel; the plate has been moved better to support the rim; brackets were added to support the flange; and the rim thickness was increased. Better chill control, ob-

tained by new methods of inoculating the molten iron, has made a reduction in maximum chill at A.M.C.C.W. plants possible, and improved inspection methods have practically eliminated the shipment of wheels with excessive chill.

Another important factor in improving the quality of chilled car wheels was the adoption of the Brinell hardness test as a standard for fixing the limits of chill depth, both maximum and minimum. This instrumental determination has proved far more reliable than the visual measurement of chill depth that has been recognized as standard in the past. The A.A.R. has now adopted Brinell hardness limits as an alternate for visual chill depth measurements and this will appear in this year's issue of their specifications.

A test for minimum chill is taken at a point 3/8 in. below the tread of the wheel to make certain that hard and long wearing metal extends to a depth equal to the wear limit. Tests for maximum chill, or maximum hardness, are taken further down in the tread, both below the throat of the flange section and below the outer portion of the rim. The purpose of these latter tests is to make sure that the metal at these points does not have a hardness so great that the strength is impaired. In effect this test for maximum hardness is a check on the control of the mottle zone. The limits used assure a gray iron backing to the chill in the tread section of all acceptable wheels.

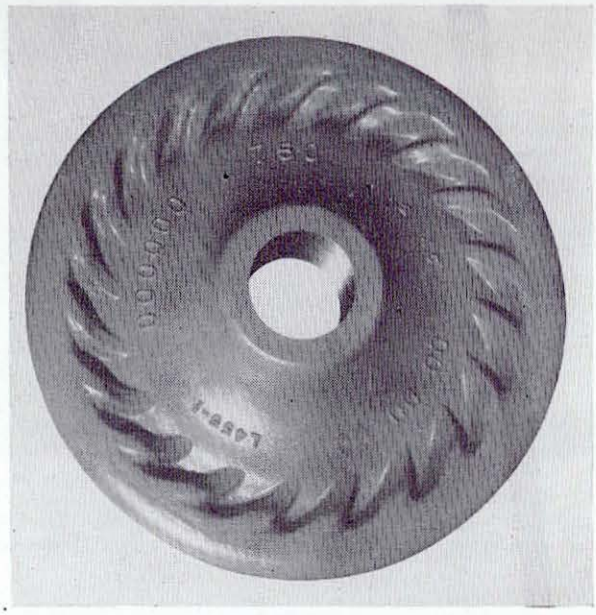
Improvements in chill control at A.M.C.C.W. member plants are well illustrated by the progress made in reducing the maximum hardness permitted in wheels shipped by these companies. At the time Brinell hardnesses were first used in 1940, a maximum of 321 was tentatively fixed at a point approximately 1½ in. below the surface at the throat of the flange. As improvements in mottle control were made, this maximum hardness was gradually reduced until now it is 225 Brinell for wheels going into 30- and 40-ton service, and 200 Brinell for those intended for 50-ton and heavier service. This latter hardness is equivalent to that of pearlitic gray iron and insures a greatly improved tread strength.

This reduction in maximum hardness, and hence in maximum chill, has not been accompanied by any decrease in minimum chill hardness which might cause more wheels to develop a worn-through-chill or out-of-round condition. Studies of wheel removals show that improved methods of inspection, combined with the use of Brinell hardness tests, have resulted in an actual decrease by almost 40 per cent in the removal of wheels for these causes related to insufficient chill.

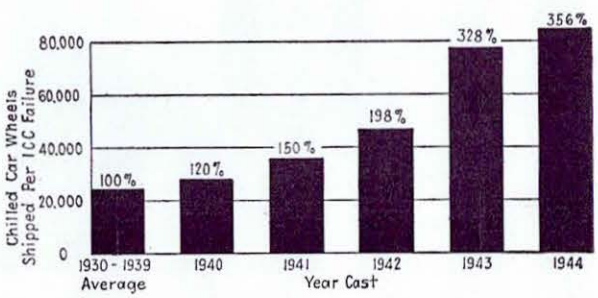
The A.A.R. X-1 Wheel

The latest development in the chilled car wheel is the A.A.R. X-1 wheel, an experimental design which is the result of study and development work aimed at the redistribution of metal in the present standard bracket wheel. Particular consideration has been given to increasing both flange and rim strength.

About 25 lb. of metal have been taken from the hub, where service stresses are low, and added to the tread section where the stresses are comparatively high. This redistribution effects an increase in the overall strength of the wheel by making possible a better balanced section throughout the casting and hence a more uniform metal temperature at the time the wheels are removed from the molds and placed in the annealing pits. The thickness of the metal through the tread section under the throat of the flange has been increased. The brackets have been made shorter and heavier and the number increased to give a more uniform support under the flange. The rim thickness has been increased and the contour from rim face around into the front plate has been curved in order to eliminate any corners which might tend to trap sand or dross during the pouring of the wheel. As a result of these changes, the cooling rate of the flange and rim portions of the tread is retarded, thus further improving chill and mottle control at these two important points. Several thousand wheels of this design are already in service under new equipment.



The A.A.R. X-1 experimental wheel showing the numerous short brackets which support the flange



The number of wheels shipped per I.C.C. failure during the first 300,000 gross ton-miles of service has shown a continued increase since the adoption of more restrictive chill limits by the A.M.C.C.

All photos courtesy of Central of New Jersey, except Nos. 2 and 5

DIESELS SET NEW STYLE FOR STOREKEEPING

Fig. 1—When the Diesel-electric locomotive came into the motive power picture purchasing agents and storekeepers had to learn a new language and how to take care of new items. The appearance of the storehouse shelves began to change

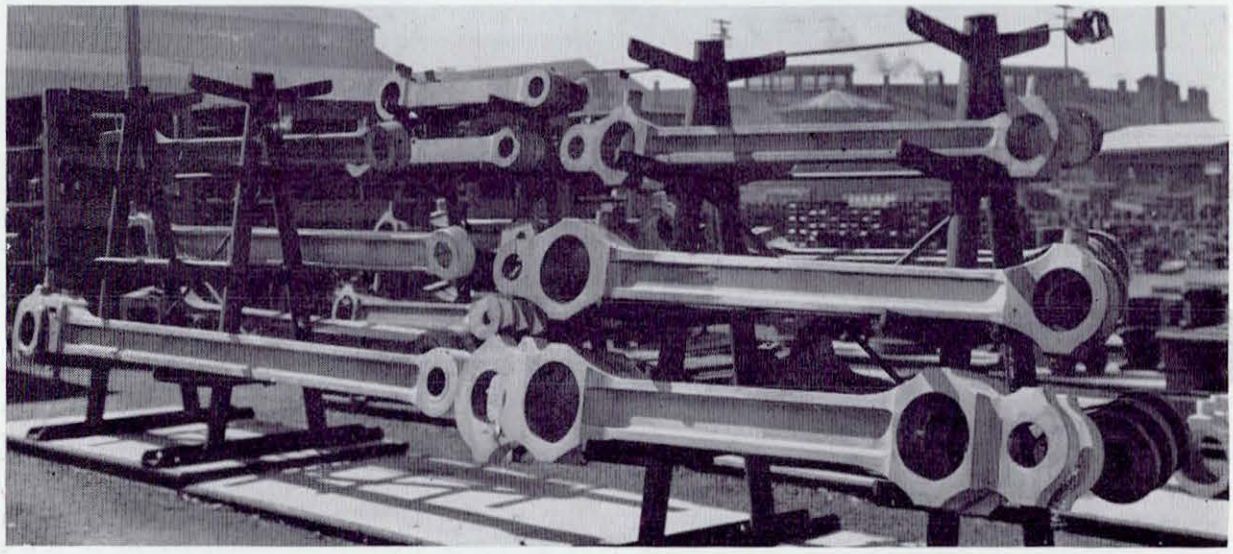


Fig. 2—Heretofore, many locomotive parts, such as locomotive side rods, or the rough forgings from which they were made, were stored outdoors

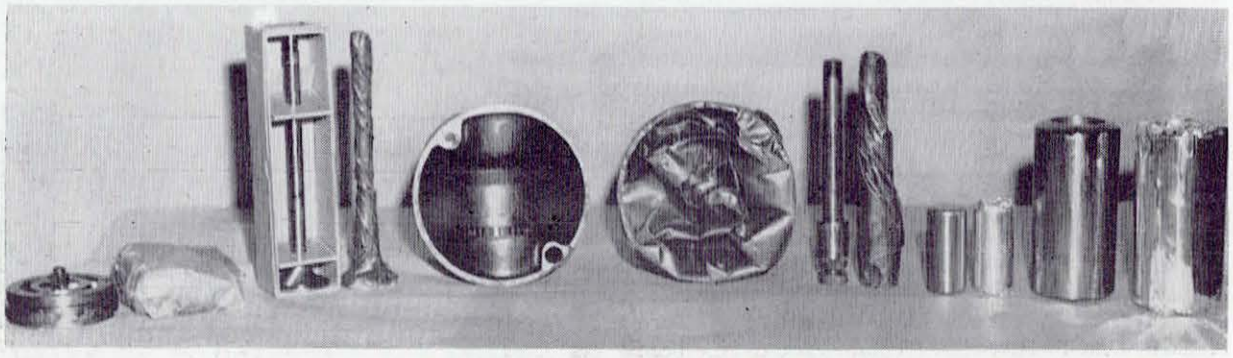


Fig. 3—Now, however, practically everything that goes on or into the Diesel must be stored inside. Many items must be protected by glass jars, cellophane, or grease and heavy paper on which has been placed a coating of wax. Left to right—discharge valve assembly, exhaust valve, piston carrier, cylinder test valve, roller bearing and piston pin. (Each is shown both ready for use and packaged)

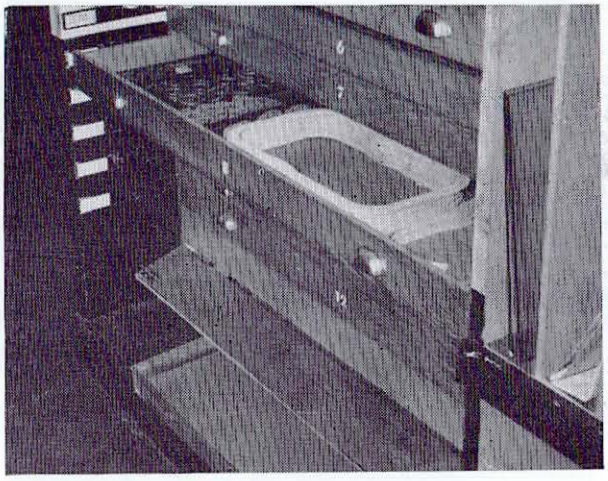


Fig. 4 (Above left)—Literally hundreds of different gaskets appeared, of all sizes, shapes and materials. If not kept moist some of them dry and crack, becoming useless. Notice the tray of water under the cabinet for supplying the required moisture

Fig. 5 (Above right)—More open racks and better light became desira le. Note the intake air filter, resistance grid, cylinder head and flexible metallic hose

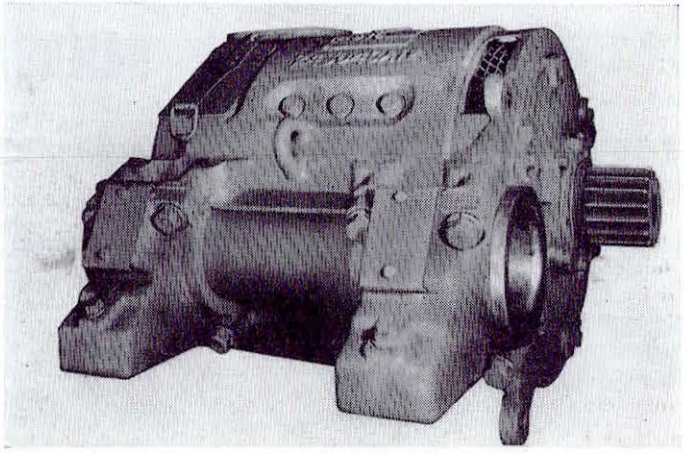


Fig. 6 (Right)—Practically everything, with the exception of a few of the larger assemblies such as this traction motor, goes on shelves for inside storage

Figs. 7 & 8—Electrical equipment, such as carbon brushes, meters, transition motors and wire, became prominent on the shelves. Small valves, springs, pistons and rings showed up to a greater extent

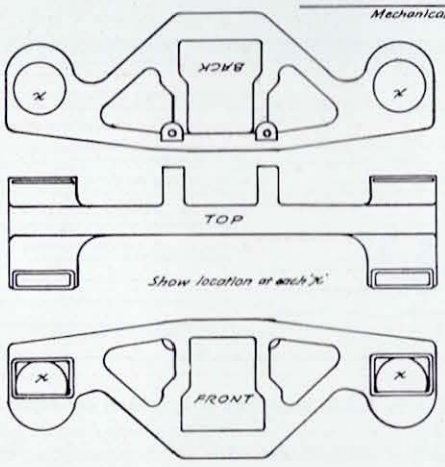
Wheel shop practices and facilities were investigated at 72 shops, 63 operated by 40 railroads and 9 by private car companies. The work was summarized under five main heads, including boring-mill, axle-lathe, wheel-press, grinding and general shop practice. Many irregularities were found, but in most cases were corrected, or adjusted to provide for the necessary improvements. Nine wheel shops were voluntarily closed down, seven of which were to be reopened when conditions had been elevated to the required standard, and two of which did not anticipate further operations. They were abandoned entirely.

A large number of new machines were installed in various wheel shops. The report emphasizes the need for competent and periodic checking of machines, tools and practices, together with competent and constant supervision, in order to secure desired results in wheel shops.

BAD ORDER LOADED CAR HAVING OLD DEFECTS EXISTING PRIOR TO LOADING RECEIVED BY THE _____ RAILROAD AND INSPECTED BY A.A.R. MECHANICAL INSPECTORS AT _____ 19—, HAVING ORIGINATED AS FOLLOWS:

CAR INITIAL	CAR NUMBER	ORIGINATING RAILROAD	BILLING STATION	WAYBILL DATE-NUMBER	INTERMEDIATE ROUTE

Mechanical Inspector



— SIDE FRAME CASTING DATA —

MAKER _____ TYPE _____ DATE CAST _____ NUMBER _____

OTHER CAST MARKS _____ SECTIONAL DESIGN _____

INDICATE LOCATION OF DEFECTS AND PREVIOUSLY PERFORMED WELDING ON ABOVE DIAGRAM, SHOW ALL WELDING IDENTIFICATION MARKS, GIVE FULL DESCRIPTION INCLUDING ALL INCIDENT DETAILS:

Use opposite side if necessary

Form used to show location of old side-frame defects on loaded cars

EMPLOYEE WELDING CERTIFICATE

Name of Operator _____ Date _____

Assigned Marks _____ Shop _____

Craft _____

Description	Oxy-Acetylene				Electric Arc			
Positions	1	2	3	4	1	2	3	4
Filler Metal								
Undercut								
Unequal Legs								
Overlapping								
Holes								
Rough Surface								
Cracks								
Slag								

Penetration: _____

Knowledge of A.A.R. Requirements: _____

Remarks: _____

This is to certify that _____ has been examined by me and he has qualified as "Welder" in accordance with the requirements set forth in Section F - Welding, Manual of Standard and Recommended Practice of the Electrical Section, Mechanical Division, Association of American Railroads, for welding in the following positions:

Oxy-Acetylene _____ Electric Arc _____

Position Legend

1 - Flat
2 - Horizontal
3 - Vertical
4 - Overhead

Examiner _____

Title _____

Approved _____
Master Mechanic

Effectiveness Note:
This qualification shall be considered as remaining in effect indefinitely, unless this conflicts with State Requirements; or unless operator is not engaged in welding for a period of two months; or unless there is reasonable basis for questioning operator's ability. (In latter case re-qualification will be required)

Form suggested for use in qualifying employees for welding work

Welding Reclamation and Heat Treating

Aside from regular inspection of welding practices at all repair points visited, detailed examination of welding reclamation of freight-car parts was made at 49 repair points on 34 railroads and in 9 plants of private car owners. Referring to the urgent need for specialized inspection and attention both before and after welding in critical areas, and the certification of welders under Interchange Rule 23, the report states that, unfortunately, not all railroads and private car owners have adhered to these requirements. To avoid hazards in train operation, it it suggested that all car owners make early investigation in each of their shops where welding is performed, to make sure that welders have been qualified. An "Employee Welding Certificate," now in use as a field record by the Mechanical Inspection Department, is offered for consideration by railroads and private car owners planning to adopt a system standard of record in support of welding certification activities.

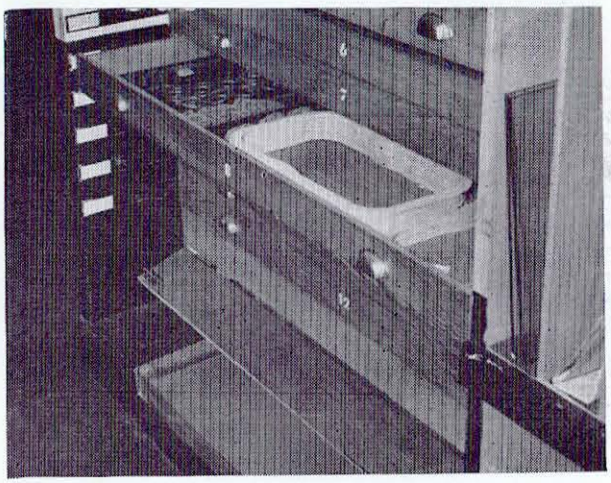
A representative sampling of the product of widely distributed shops engaged in brake-beam repairs was made, the total output being estimated to be approximately 12,500 units a month. Each inspection involved detail examination of numbers of repaired brake beams, and the facilities and practices employed, based upon the standard specifications for repairs to freight-equipment brake beams as contained in Section E, Manual of Standard and Recommended Practice.

Numerous shops were found nonconforming in certain details and the report suggests that, with the aid of the current improved specifications, natural progress should bring continual betterment. In view of the extent and importance of brake-beam repair operations, together with irregularities described, the report urges specialized inspection of a representative number of beams accepted for stores stock.

Air-Brake Inspection and Maintenance

Thorough detailed investigation of air-brake maintenance practices and facilities was made at 591 freight-car inspection and repair points on 38 Class I railroads, on 27 other than Class I railroads, and in 30 car-repair plants of private car owners.

Many conditions being found at variance with applicable regulations, the report suggests the drastic



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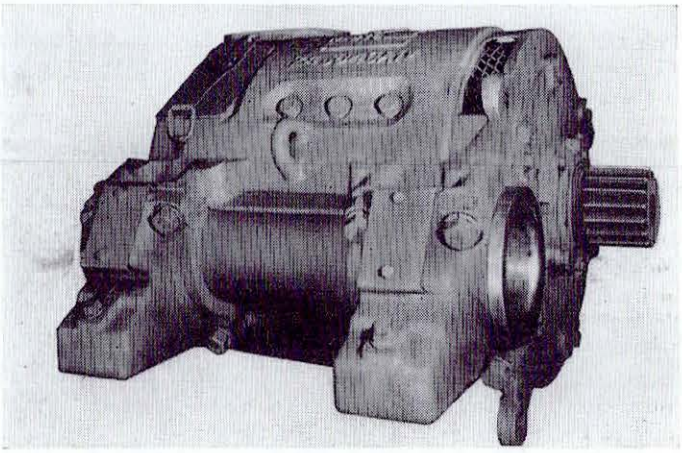

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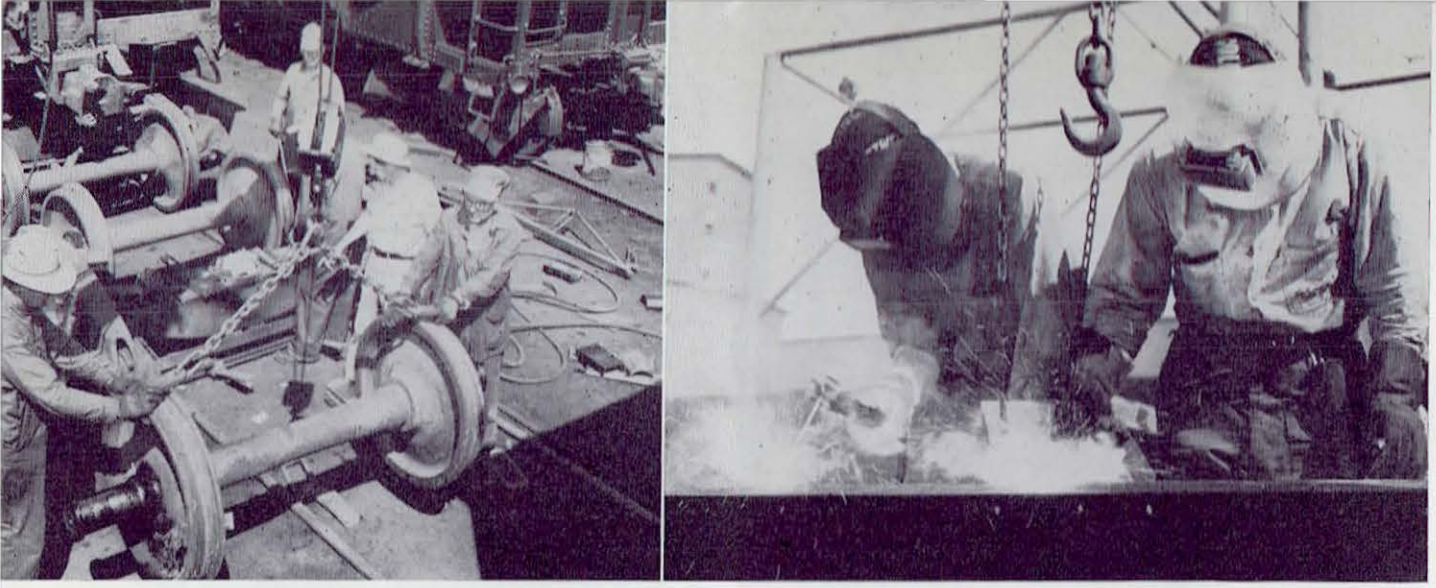


Freight-car trucks and welding practices are checked by the A.A.R. inspectors

A.A.R. MECHANICAL INSPECTION HELPS RAILROADS GIVE BETTER SERVICE

Inspection force of seven men checks freight-car conditions and repair practices throughout the country—Reports facilitate making improvements, often immediately

The Mechanical Inspection Department of the Association of American Railroads Mechanical Division, which was organized in 1920 to effect badly needed improvement in cross billing for freight-car repairs, has gradually expanded its work over the years to include intensive check of wheel-shop practices, air-brake maintenance, journal-box servicing, welding and reclamation, the loading of defective equipment and, in general, the making of such repairs as will assure freight cars moving to destination without intermediate shopping and attendant delays. The practical carrying out of this work is, therefore, one of the constructive activities of the Mechanical Division, with an important bearing on railway operation.

While the division's inspectors, a seven-man force of specially selected and trained men, function primarily to discover defective conditions and suggest corrective action (taken on the spot in so far as practicable), they also serve as an educational agency, instructing local supervisors and car men in all cases of doubt regarding proper compliance with A.A.R. rules and standards. This work can hardly be evaluated on a numerical basis, but has unquestionably been a real factor in improved freight-car maintenance, reduced delays en route, less frequent loading of defective equipment and fewer transfers of loaded cars.

The scope of the inspection work is extremely broad, covering railroads and private car companies in this country, Canada and Mexico. In the last 12-month period, 559 inspection and repair points on Class I railroads were checked, 32 points on other railroads; and 30 shops of private car owners.

How the Work Is Organized

The Mechanical Inspection Department consists of a chief inspector and six men having experience equivalent to that of a general car foreman, well versed in the interchange rules and other A.A.R. standards and regulations. These men, either permanently employed or borrowed from individual railroads as vacancies occur, are equipped with all rule books and special gages required in checking freight-car conditions and shop practices. Above all, they bring to their inspection work a long experience and thorough acquaintance with the practical application of A.A.R. rules.

Inspections, frequently made on request, are programmed well in advance throughout the year. The work is specialized to the extent that particular atten-

tion is given to car-wheel shops, welding reclamation and heat-treating practices, air brakes, lubrication, and draft gears. On a system inspection, more than one inspector may be accompanied by local supervisors and mechanical officers from the railroad, but at outlying points one A.A.R. inspector does the whole job and, of course, has to be qualified to pass on all phases of the work.

In any case, as soon as an inspection is made, any defects found are called to the attention of the local supervision in a noncritical way and with emphasis on the importance of taking prompt corrective action in the interest of railroads as a whole. Before leaving the property, the inspector goes over his findings with the chief mechanical officer and his staff. A written report, including a statement of improper practices found and corrective action taken or required is then sent to the chief mechanical officer from Mechanical Division headquarters at Chicago. Any general condition is reported immediately to the Arbitration Committee, and necessary changes in the interchange rules or interpretations are made and circularized to member roads and all car owners. Any condition with a bearing on operation, traffic or claims is referred to the appropriate division of the A.A.R. An annual report summarizing mechanical inspections throughout the year is distributed and sometimes used in substantial quantities by member roads.

These inspections and reports are beneficial in a number of ways, showing not only the repair points and practices most in need of attention, but stimulating the efforts of car-repair forces generally. While normally individual points are not visited oftener than once in possibly two or three years, the knowledge that A.A.R. inspectors are on the job encourages all of the repair points on any one road, and also adjoining roads, to check up their work in anticipation of a formal inspection. Where necessary, rechecks are made at the same point if there is reason to believe that local repair forces fail to understand instructions, or for some other reason are not doing the kind of work required.

That freight car conditions are still far from perfect is no reflection on the A.A.R. inspectors, but is due primarily to intensive use of equipment during and after World War II, accompanied by extensive deferred maintenance, inadequate retirement programs, if any, inability to acquire sufficient new cars, and a shortage of experienced manpower. Moreover, during the war, the entire inspection force devoted almost all of its time to the maintenance of tank cars, pooled for the transportation of petroleum products from oil fields in Texas, Oklahoma and Louisiana to the eastern seaboard during the first part of the war and from the same points to the Pacific Coast at the close of the European conflict.

Important Details Thoroughly Checked

The exceptionally thorough inspection of all important details of freight car maintenance in accordance with A.A.R. rules is evident from an examination of one of the forms, illustrated, which is filled out by inspectors at individual inspection and repair

Railroad (In Full) _____ Station (In Full) _____ Date _____

Total No. Production Employes: In shop: In Yards: At Freight Houses

A Is shop equipped with:
(a) Wheel Shop complete_____
(b) Mounted journal lathe only_____
(c) Standard spaced storage tracks_____

A1 Inspection defective wheels removed:
No.pairs examined____ No.exceptions____

A2 Inspection of mounted wheels on hand:
Pairs new_____ Pairs Secondhand_____
Number exceptions_____

B Investigation weld repair practices:
(Full details shown in exhibit.)

C Repaired brake beams examined:
(Full details shown in exhibit.)

D Examine as follows:
Test racks: UC____ AB_____ 37_____
Release control retainer exhaust gage fitting.
Cylinder leakage test gage.
Single car testing devices (Includes gages)
Single car testing device test rack.
Airhose mounting facilities, gages, practices.
AB cylinder conditioning facilities.
Condition of cylinder lubricant.

D1 Periodic airbrake conditioning practices. No.cars examined (Rule 60)____

D2 Terminal and road train brake test practices:
Number trains inspected_____

E Journal lubrication practices:
Insp. No. cars repacked (Rule 66)____
Insp. No. cars in shop ready for service_____
Inspected number cars in yards or train ready for service_____

F Defective cars outshopped:
No. cars examined____ No. defective____

G Defective cars in yards ready for service:
No. cars examined_____ No. defective____

H Examined____cars transferred account old defects. See Exhibit_____

I Examined____open top cars improperly loaded. See Exhibit_____

J Cars lightweighed and stenciled:
No. Inspected____ No. Exceptions_____

K Number cars checked against billing repair cards:_____
No. overcharges_____ $_____
No. undercharges_____ $_____

L Investigation of foreign cars damaged:
No. cases examined_____
No. billed in error_____

M Have repairs been made in violation of Interchange Rule 1_____

N Investigation of draft gear and attachment inspection practices in shop.

O Examine condition all gages in service:
Were all necessary available_____

P Were applicable rules and regulations available_____

Q Do records indicate periodic supervisory checks:
(a) By local supervision_____
(b) By system supervision_____

R Were current AAR Circular Letters available_____

S Were all exceptions explained to and discussed with all concerned_____

T Name and title of representative accompanying this inspection:

(over) Mechanical Inspector.

Form filled in by A.A.R. inspectors at individual car-repair points

points. Another form shows the practices followed in billing for car repairs. Still another typical form gives the location of old side-frame defects on loaded cars.

The comprehensive character of inspections and investigations made by the Mechanical Inspection Department is indicated by its annual report for 1947 which is divided into twelve major subjects, reviewed briefly as follows:

A.A.R. inspector's form covering billing for repairs to foreign cars

INVESTIGATION GOVERNING BILLING
(Bill Office)

_____ Station _____ 194__

1. Are the billing and checking departments calling attention to undercharges found in foreign bills_____.
2. Are "NONBILL" repair cards issued for repairs necessitated by unfair usage and included in bill_____.
3. Is any record kept of repair cards returned to repair points for correction_____.
4. Total number Rule 32 cases billed against owners_____.
   Number of Rule 112 cases OK_____ No. exceptions_____.
   Number Rule 120 cases OK_____ No. exceptions_____.
5. Was material tabulation made and bill statement compiled_____.
   from_____ to_____.
6. Was air brake tabulation made_____ No. cases o/c_____.

(All Points)

7. Examination of billing repair cards to determine if charges are in accordance with original record of repairs. On railroads using the old style records, make complete check of original record of repairs as compared to information shown on billing repair card, and furnish detailed report.
8. Are all reports covering foreign cars damaged, as required by Sup. Regs. being prepared to permit of determining responsibility for repairs of such damage.
9. Is practice of inspection and authorization of work on foreign cars on repair or shop track, in accord with the regulations, particularly Interchange Rule 7.

_____
Mechanical Inspector.

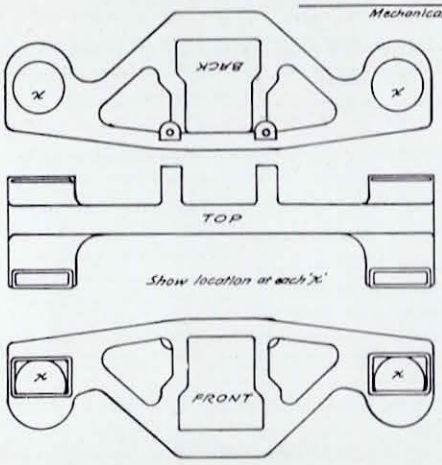
Wheel shop practices and facilities were investigated at 72 shops, 63 operated by 40 railroads and 9 by private car companies. The work was summarized under five main heads, including boring-mill, axle-lathe, wheel-press, grinding and general shop practice. Many irregularities were found, but in most cases were corrected, or adjusted to provide for the necessary improvements. Nine wheel shops were voluntarily closed down, seven of which were to be reopened when conditions had been elevated to the required standard, and two of which did not anticipate further operations. They were abandoned entirely.

A large number of new machines were installed in various wheel shops. The report emphasizes the need for competent and periodic checking of machines, tools and practices, together with competent and constant supervision, in order to secure desired results in wheel shops.

BAD ORDER LOADED CAR HAVING OLD DEFECTS EXISTING PRIOR TO LOADING RECEIVED BY THE _____ RAILROAD AND INSPECTED BY A.A.R. MECHANICAL INSPECTORS AT _____ 19—, HAVING ORIGINATED AS FOLLOWS:

CAR INITIAL	CAR NUMBER	ORIGINATING RAILROAD	BILLING STATION	WAYBILL DATE-NUMBER	INTERMEDIATE ROUTE

Mechanical Inspector



—SIDE FRAME CASTING DATA—

MAKER _____ TYPE _____ DATE CAST _____ NUMBER _____

OTHER CAST MARKS _____ SECTIONAL DESIGN _____

INDICATE LOCATION OF DEFECTS AND PREVIOUSLY PERFORMED WELDING ON ABOVE DIAGRAM, SHOW ALL WELDING IDENTIFICATION MARKS, GIVE FULL DESCRIPTION INCLUDING ALL INCIDENT DETAILS:

Use opposite side if necessary

Form used to show location of old side-frame defects on loaded cars

EMPLOYEE WELDING CERTIFICATE

Name of Operator _____ Date _____

Assigned Marks _____ Shop _____

Craft _____

Description / Positions	Oxy-Acetylene 1	2	3	4	Electric Arc 1	2	3	4
Filler Metal								
Undercut								
Unequal Legs								
Overlapping								
Holes								
Rough Surface								
Cracks								
Slag								

Penetration: _____

Knowledge of A.A.R. Requirements: _____

Remarks: _____

This is to certify that _____ has been examined by me and he has qualified as "Welder" in accordance with the requirements set forth in Section F - Welding, Manual of Standard and Recommended Practice of the Electrical Section, Mechanical Division, Association of American Railroads, for welding in the following positions:

Oxy-Acetylene _____ Electric Arc _____

Position Legend

1 - Flat
2 - Horizontal
3 - Vertical
4 - Overhead

Examiner _____

Title _____

Approved _____
Master Mechanic

Effectiveness Note:
This qualification shall be considered as remaining in effect indefinitely, unless this conflicts with State Requirements; or unless operator is not engaged in welding for a period of two months; or unless there is reasonable basis for questioning operator's ability. (In latter case re-qualification will be required)

Form suggested for use in qualifying employees for welding work

Welding Reclamation and Heat Treating

Aside from regular inspection of welding practices at all repair points visited, detailed examination of welding reclamation of freight-car parts was made at 49 repair points on 34 railroads and in 9 plants of private car owners. Referring to the urgent need for specialized inspection and attention both before and after welding in critical areas, and the certification of welders under Interchange Rule 23, the report states that, unfortunately, not all railroads and private car owners have adhered to these requirements. To avoid hazards in train operation, it it suggested that all car owners make early investigation in each of their shops where welding is performed, to make sure that welders have been qualified. An "Employee Welding Certificate," now in use as a field record by the Mechanical Inspection Department, is offered for consideration by railroads and private car owners planning to adopt a system standard of record in support of welding certification activities.

A representative sampling of the product of widely distributed shops engaged in brake-beam repairs was made, the total output being estimated to be approximately 12,500 units a month. Each inspection involved detail examination of numbers of repaired brake beams, and the facilities and practices employed, based upon the standard specifications for repairs to freight-equipment brake beams as contained in Section E, Manual of Standard and Recommended Practice.

Numerous shops were found nonconforming in certain details and the report suggests that, with the aid of the current improved specifications, natural progress should bring continual betterment. In view of the extent and importance of brake-beam repair operations, together with irregularities described, the report urges specialized inspection of a representative number of beams accepted for stores stock.

Air-Brake Inspection and Maintenance

Thorough detailed investigation of air-brake maintenance practices and facilities was made at 591 freight-car inspection and repair points on 38 Class I railroads, on 27 other than Class I railroads, and in 30 car-repair plants of private car owners.

Many conditions being found at variance with applicable regulations, the report suggests the drastic

need for minute supervisory inspection of brakes prior to—and closer checking following—all repairs to cars, including repairs to air brakes. It also urges that on-the-ground supervisors be required to have exact knowledge of the brake efficiency of each car outshopped, that being possible only following actual inspection prior to the lifting of the repair record and removal of bad-order cards.

Air-brake inspection and maintenance at freighthouses, team tracks and yards, is commented on, also terminal and road train-brake tests, since the inspection of 369 departing freight trains during and following terminal and road brake tests by trainmen or yard inspectors disclosed many undesirable operating conditions, avoidable only through the practical application of the code "Maintenance of Brake and Train Air Signal Equipment," formulated jointly by the Interstate Commerce Commission Safety Bureau and the A.A.R. Mechanical Division.

In connection with the lubrication of freight-car journals, the report presents an imposing list of undesirable conditions noted (1) during examination of material stocks available for use, (2) during periodic and other shop operations, and (3) during inspection of journal boxes of cars in train yards, following approval for service by yard forces.

It is estimated that during the year roughly 43,000 cars on shop tracks for other work, 90,000 cars in train yards and about 17,000 cars being loaded at freighthouses, all having journal boxes overdue for and in need of periodic inspection and repacking, were released to service lacking the necessary attention. This would suggest the vital necessity for standardization of policy and practice, as defined by Interchange Rule 66, applicable to all railroads and private car owners, without exception, if the present serious hot-journal difficulties are to be reduced.

The report states that the service treatment of journal boxes in the train yards is a subject not entirely policed with clearly defined controls and that, in many cases, little yard lubrication is performed even though forces are available and many cars originate for movement daily.

The report includes a section on defective cars outshopped and ready for service, and defective cars in yards and at freighthouses approved for service; also a section on loaded and empty cars on hand in bad order 48 hr. or more, not yet repaired and released to service.

Loading of Defective Equipment

During the year, the department investigated the facts concerning the use of the defective equipment (1,895 cars), the contents of which were transferred at the first point of delivery off the originating railroad due to old defects in existence, which ought to have been corrected prior to the last loading.

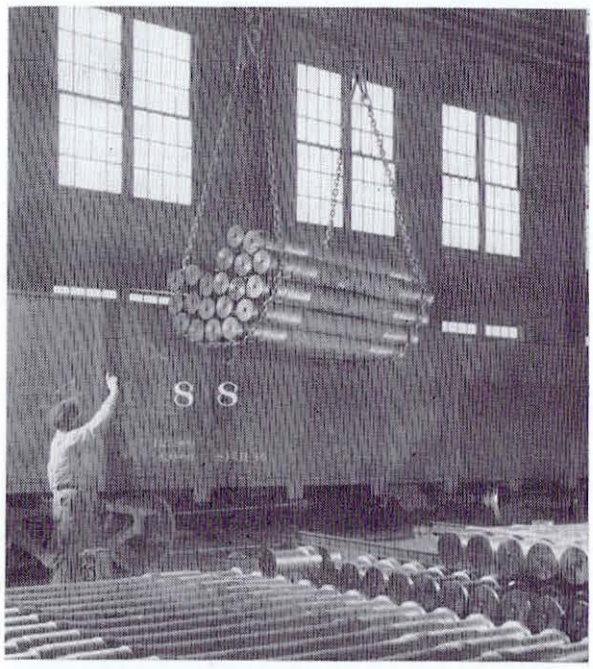
As facts were developed, they were immediately referred to the chief mechanical officer, indicating full waybill data, a brief description of the old defects involved, and the short intervals of time and distances between points of origin and transfer, together with the suggestion that greater care be exercised in the inspection and selection of cars to be loaded in order to avoid transfer of contents, shopping of cars and delay to freight in transit.

Despite the retirement of old and the installation of new and repaired equipment, the report calls attention to the number of cars transferred at certain major interchange points and states that lasting improvement will depend upon improved inspection, repair and classification practices, plus the more careful selection of cars to be loaded.

Regarding the relightweighing of equipment and application of new light weight and load-limit markings, the report mentions difficulties being experienced because of improper and unreliable lightweight and load-limit markings which demand greater care in this detail and close adherence to all requirements of Interchange Rule 30 without exception.

Since several hundred cars of foreign ownership were carded "Home Shop for Repairs" by car inspectors and other unauthorized persons, the report says the absence of authority that justifies sending any car home because of mechanical defects other than are defined by Interchange Rules 1, 112, and 120 should suggest to the handling line the necessity for referring such future cases to the chief mechanical officers, or to designated operating representatives, for the proper disposition of the car.

Miscellaneous matters of particular importance covered in the report includes: Protection of car-wheel rims by shield or other device while painting; maintenance of more legible reporting marks on cars; periodic checking of all wear-limit and other gages, and provision of a complete supply at all inspection and repair points of necessary copies of current rules and regulations applicable to the work at hand, these copies not being in every instance now available and used.



Axles to help relieve the freight car shortage are loaded for shipment at the Gary Works, Gary, Indiana, of U. S. Steel's Carnegie-Illinois operation

J. M. Nicholson, Chairman

Vaughn R. Hawthorne, Executive Vice-Chairman

The sessions of the annual meeting of the Mechanical Division of the Association of American Railroads will be held in the Gold Room of the Congress Hotel, Chicago, June 28, 29, and 30. Hours of sessions are given in Central Daylight Saving Time. Members are asked to register each day. No badges will be issued.

The presentation of committee reports will be limited to a brief summary of their principal features. Among the 16 committee reports for discussion are three which are related to research projects—two that have been under way at the Canton Laboratory of the Timken Roller Bearing Company for about ten years, and one that was started in 1945 at the laboratory of the Railway Service & Supply Corp., Indianapolis, Ind., where a new laboratory for the service of the Mechanical Division has recently been completed.

PROGRAM

Monday, June 28 (10 a.m.)

Address by W. J. Patterson, Member of the Interstate Commerce Commission
Address by J. H. Aydelott, vice-president, Operations and Maintenance Department, A.A.R.
Address by J. M. Nicholson, chairman, Mechanical Division, and assistant to vice-president, Atchison, Topeka & Santa Fe
Action on Minutes of 1947 Annual Meeting
Appointment of Committees on Subjects, Resolutions
Unfinished business
New business
Report of General Committee
Report of Nominating Committee

MECHANICAL DIVISION

ACTIVITIES SCHEDULED FOR

P. & S. DIVISION

The annual meeting at Chicago's Palmer House, June 28, 29 and 30, of the Purchases and Stores Division of the Association of American railroads, faces a full schedule. A large attendance is expected, particularly as many of the younger men are looked for as a result of a personal appeal by Chairman F. S. Austin, manager, purchases and stores, New York Central. With such an attendance and a set of reports which include many important topics all signs point to a successful meeting. Morning sessions will convene at 10:00 a.m. and those in the afternoon at 2:00 p.m., Central Daylight Saving Time.

F. S. Austin, Chairman

W. J. Farrell, Executive Vice-Chairman

PROGRAM

Monday, June 28, 1948

Meeting called to order by Chairman F. S. Austin, manager, purchases and stores, New York Central System
Invocation
Address: F. J. Gurley, president, Atchison, Topeka & Santa Fe
Address: J. H. Aydelott, vice-president, Operations and Maintenance Department, Association of American Railroads
Address: Chairman F. S. Austin
Communications
Appointment of Committees. (Resolutions and Memorials)
Action on Minutes of 1947 Annual Meeting
Report of General Committee
Reports of:
- Subject 1—Purchasing and Stores Department Manual—Recommended Rules and Practices; J. W. Hagerty (chairman), assistant purchasing agent, Pennsylvania
- Subject 2—Standard Material Classification; H. Gibson (chairman), assistant general storekeeper, St. Louis-San Francisco
- Subject 3—Scrap, Handling and Preparation—Classification and Sale; A. T. Kipping (chairman), supervisor, scrap and reclamation, Chicago, Rock Island & Pacific
- Subject 3A—General Reclamation; A. M. McHenry (chairman), purchasing agent and storekeeper, Gulf, Colorado & Santa Fe
- Subject 4—Material Stock Report—Inventory and Pricing Methods and Practices; W. K. Smallridge (chairman), assistant general storekeeper, Northern Pacific

Address: J. S. Fair, Jr., purchasing agent of the Pennsylvania: "Comparative Analysis of Material Balances—1940—1948"

need for minute supervisory inspection of brakes prior to—and closer checking following—all repairs to cars, including repairs to air brakes. It also urges that on-the-ground supervisors be required to have exact knowledge of the brake efficiency of each car outshopped, that being possible only following actual inspection prior to the lifting of the repair record and removal of bad-order cards.

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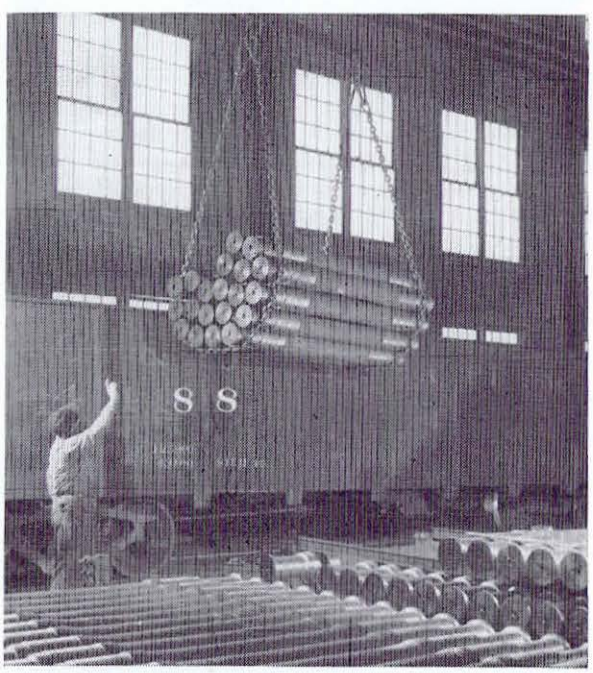

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Complete facilities for comparing performances of lubricants, and the design, construction, and finish of correlated parts of the journal-box assembly

Fig. 1—The laboratory interior

EXPANDED LUBRICATION RESEARCH LABORATORY FOR A.A.R. MECHANICAL DIVISION

At the request of the Mechanical Division, Operation and Maintenance Department, of the Association of American Railroads, the construction of a new laboratory has been completed by the Railway Service & Supply Corp. at Indianapolis, Ind. These facilities will afford a complete and suitable means of comparing the performance of different lubricants, methods of lubrication, lubricating practices and media, bearing assemblies and component parts and journal finishes under varying conditions of speed, load, and atmospheric temperature. The ultimate objective is to develop means and methods of obtaining the best possible journal-bearing performance whether of the roller or solid bearing type.

The plant will be operated by the Railway Service & Supply Corp. for and under the program direction of the mechanical engineer of the Mechanical Division and two committees of the Mechanical Division: the Committee on Lubrication of Cars and Locomotives, and the Committee on Journal Bearing Development.

Some indication of the nature of the problem may be gained from the increased operating demands the conventional journal-box assembly has been required to meet, as shown in the tabular comparison of 1926 with 1946 freight-car operation.

Why Journal-Bearing Service Is More Severe

	1926	1946	Percent increase
*Average car-miles per day	32.6	45.2	38.6
*Average freight car capacity, tons	45.1	51.3	13.8
Average net ton-miles per car per day	569	948	66.5

(*)Railroad information 1947 edition, Eastern Railroad Presidents Conference Committee on Public Relations, 143 Liberty street, New York.

Under the conditions of meeting in excess of a 66.5 per cent increase in demand, the conventional journal-box assembly has an incidence of failure (hot box), illustrated by the figures given for two typical railroads in 1946.

Hot Boxes per Unit of Equipment on Two Typical Railroads in 1946

	Road A	Road B
Av. cars on line per day in movement or subject to movement	228,000	53,000
Cars on line per journal failure (hot box)	5,432	9,360
Journals in service per journal failure (hot box)	43,456	74,880
Foreign cars on line, per cent	50.3	33.7

Broadly, the research and development program is directed toward finding out why one journal in 43,456 or 74,880 developed a hot box and all the others performed satisfactorily. Laboratory facilities are now available for operation at temperatures from 100 deg. F., to 30 deg. F. below zero, and a procedure has been developed based on maximum loads and speeds from starting to 100 m.p.h. and decelerating from this speed. The laboratory facilities are assembled as a unit, a general view of the interior being shown in Fig. 1.

In the right background a portion of the test machine can be seen through the open door of the refrigerated room. This room is 15 ft. square with a ceiling 11 ft. high and is insulated efficiently to accommodate atmospheric temperature to 40 deg. F. below zero. A direct system of refrigeration employing two evaporating units suspended from the ceiling is used both to lower and to raise the room temperature. In addition to the blast coil and circulating fans, each unit is equipped with electric

strip heaters of sufficient capacity to raise the temperature of the room from 30 deg. F. below zero to 100 deg. F. in approximately 16 hr.

In Fig. 2, the front or journal end of the test machine is shown with the friction measuring device applied to a roller-bearing box. The instrument was developed in this laboratory to measure the starting and running friction of a 5½-in. by 10-in. railroad-car journal bearing of either the conventional solid or roller type and to provide a positive means of comparing the behavior in service of different lubricants, mechanical design, construction and finish of bearings, journals and other correlated parts of the journal-box assembly. The friction, which may be readily converted into drawbar pull expressed in pounds per ton, is measured and constantly recorded through a hydraulic system on one of three pressure-recording instruments with full-scale readings corresponding in values from 1.8 to 43 lb. per ton of drawbar pull. The smallest division of the most sensitive recording instrument corresponds to 0.01 lb. per ton of drawbar pull.

These recording instruments and their controlling valves, shown in Fig. 3 (the control room) include: an eight-pen temperature recorder with a range of 50 deg. F. below zero to 300 deg. F. which records the temperature from eight places in the journal-bearing box under investigation; also a two-pen temperature recorder with a range of 50 deg. F. below zero to 400 deg. F. which records the operating-room temperature and the temperature of the principal machine support or reaction bearing.

The panel on the right wall of the control room contains automatic temperature controls to permit the test machine to operate over long periods without an attendant. One of the instruments, when cut into the operating circuit and set at a predetermined temperature for the bearing or journal under test, immediately shuts down the machine if this temperature is reached. Another instrument is similarly actuated by the temperature of the principal support bearing. The board also contains push-button controls for operating the motor-generator set, selector switches for automatic or manual control of the generator, time signal clock and other control equipment.

From the control desk, shown on the left of Fig. 3, all running adjustments of the test machine are made by the operator. The starting and speed control of the machine, direction of operation and load adjustment can be varied. Speeds are instrument recorded up to 125 m.p.h. The load can be adjusted up to the rail-load limits of a 5½-in. by 10-in. journal and as indicated on the scale visible through the window directly in front of the operator. The friction-measuring device is adjusted by push button control and indicated through highly sensitive microswitches and glow lights.

A view of the chemical laboratory looking towards the dynamometer control room is shown in Fig. 4. This laboratory is adequately equipped with modern apparatus and equipment to handle all of the physical and chemical analyses of the lubricants under investigation and is a necessary and important part of the general laboratory set-up.

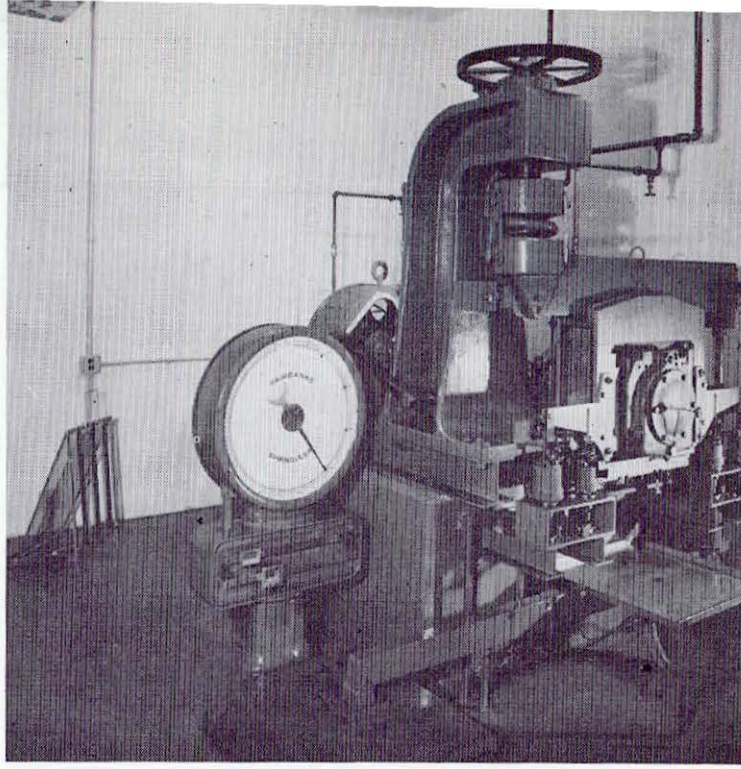
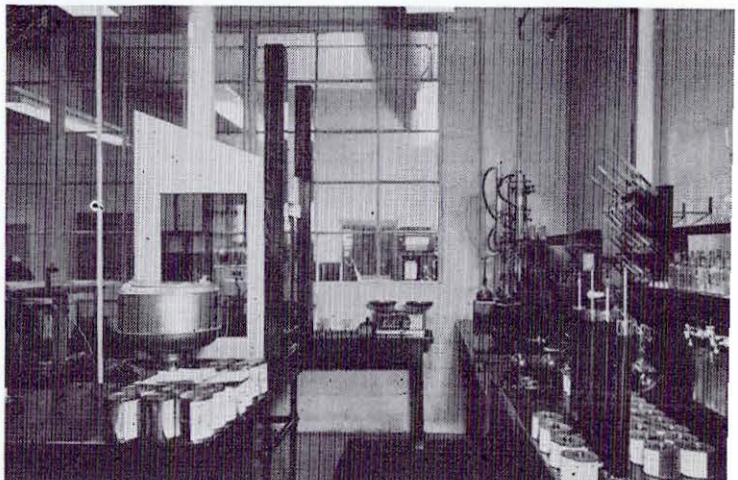


Fig. 2—Dynamometer room and journal-bearing test unit

Fig. 3—Equipment in the control room

Fig. 4—A portion of the chemical laboratory



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Monday, June 28 (10 a.m.)

Address by W. J. Patterson, Member of the Interstate Commerce Commission
Address by J. H. Aydelott, vice-president, Operations and Maintenance Department, A.A.R.
Address by J. M. Nicholson, chairman, Mechanical Division, and assistant to vice-president, Atchison, Topeka & Santa Fe
Action on Minutes of 1947 Annual Meeting
Appointment of Committees on Subjects, Resolutions
Unfinished business
New business
Report of General Committee
Report of Nominating Committee

MECHANICAL DIVISION

ACTIVITIES SCHEDULED FOR

P. & S. DIVISION

The annual meeting at Chicago's Palmer House, June 28, 29 and 30, of the Purchases and Stores Division of the Association of American railroads, faces a full schedule. A large attendance is expected, particularly as many of the younger men are looked for as a result of a personal appeal by Chairman F. S. Austin, manager, purchases and stores, New York Central. With such an attendance and a set of reports which include many important topics all signs point to a successful meeting. Morning sessions will convene at 10:00 a.m. and those in the afternoon at 2:00 p.m., Central Daylight Saving Time.

F. S. Austin, Chairman

W. J. Farrell, Executive Vice-Chairman

PROGRAM

Monday, June 28, 1948

Meeting called to order by Chairman F. S. Austin, manager, purchases and stores, New York Central System
Invocation
Address: F. J. Gurley, president, Atchison, Topeka & Santa Fe
Address: J. H. Aydelott, vice-president, Operations and Maintenance Department, Association of American Railroads
Address: Chairman F. S. Austin
Communications
Appointment of Committees. (Resolutions and Memorials)
Action on Minutes of 1947 Annual Meeting
Report of General Committee
Reports of:
- Subject 1—Purchasing and Stores Department Manual—Recommended Rules and Practices; J. W. Hagerty (chairman), assistant purchasing agent, Pennsylvania
- Subject 2—Standard Material Classification; H. Gibson (chairman), assistant general storekeeper, St. Louis-San Francisco
- Subject 3—Scrap, Handling and Preparation—Classification and Sale; A. T. Kipping (chairman), supervisor, scrap and reclamation, Chicago, Rock Island & Pacific
- Subject 3A—General Reclamation; A. M. McHenry (chairman), purchasing agent and storekeeper, Gulf, Colorado & Santa Fe
- Subject 4—Material Stock Report—Inventory and Pricing Methods and Practices; W. K. Smallridge (chairman), assistant general storekeeper, Northern Pacific

Address: J. S. Fair, Jr., purchasing agent of the Pennsylvania: "Comparative Analysis of Material Balances—1940—1948"

Discussion of reports on:

Locomotive Construction, H. H. Lanning (chairman), mechanical engineer, Atchison, Topeka & Santa Fe
Steam and Electric Locomotives Section
Diesel Locomotive Section
Gas-Turbine Locomotive Section

Crank-pin Research, J. R. Jackson, (chairman), mechanical engineer, Mechanical Division, A.A.R.

Discussion and motion picture of postwar rehabilitation of French Railroads, by Georges C. Bohl, chief, French Railway Mission

Tuesday, June 29 (9 a.m.)

Address by Dr. H. T. Heald, president, Illinois Institute of Technology

Discussion of reports on:

Arbitration, J. P. Morris (chairman), general mechanical assistant, Atchison, Topeka & Santa Fe

Prices for Labor and Materials, T. J. Boring (chairman), general foreman, M.C.B. Clearing House, Pennsylvania

Brakes and Brake Equipment, J. P. Lantelme (chairman), general foreman, Pennsylvania

Geared Hand Brakes, A. K. Galloway (chairman), general superintendent motive power and equipment, Baltimore & Ohio

Loading Rules, W. B. Moir (chairman), chief car inspector, Pennsylvania

Specifications for Materials, H. G. Miller (chairman), mechanical engineer, Chicago, Milwaukee, St. Paul & Pacific

Couplers and Draft Gears, H. W. Faus (chairman), engineer motive power, New York Central

Lubrication of Cars and Locomotives, L. B. Jones (chairman), engineer tests, Pennsylvania

Journal-Bearing Development, J. R. Jackson (chairman), mechanical engineer, Mechanical Division, A.A.R.

Development of Hot-Box Alarm Devices, J. R. Jackson, (chairman), mechanical engineer, Mechanical Division, A.A.R.

Safety Appliances, R. G. Henley (chairman), general superintendent motive power, Norfolk & Western

Wednesday, June 30 (9 a.m.)

Discussion of reports on:

Car Construction, T. P. Irving (chairman), engineer car construction, Advisory Mechanical Committee, Chesapeake & Ohio

Tank Cars, R. D. Bryan (chairman), mechanical assistant, Atchison, Topeka & Santa Fe

Wheels, E. E. Chapman (chairman), mechanical assistant, Atchison, Topeka & Santa Fe

Axle Research, J. R. Jackson (chairman), mechanical engineer, Mechanical Division, A.A.R

Election of officers and members of General Committee

Report of Committee on Resolutions

CHICAGO CONVENTIONS ON JUNE 28, 29 AND 30

Reports of:

Subject 5—Forest Products; W. F. Dunn (chairman), tie and timber agent, Southern

Subject 8—Materials in Process—Stores and Shop Orders; C. R. Wheeler (chairman), division storekeeper, Baltimore & Ohio

Tuesday, June 29, 1948

Address: L. D. Greene, consultant on scrap, American Iron & Steel Institute: "Ferrous Scrap Situation As I See It"

Report of:

Subject 9—Fuel—Coal, Fuel Oil, Including Diesel Fuel Oil; W. G. Rathert (chairman), assistant purchasing agent, Missouri Pacific

Address: W. W. Kelly, general purchasing agent of the Santa Fe: "Whither—Petroleum Fuels and Products"

Reports of:

Subject 12—Purchasing Department—Organization and Procedures; S. A. Hayden (chairman), purchasing agent, Missouri-Kansas-Texas Lines

Subject 13—Stationery and Printing; Vincent Erb (chairman), stationer, Reading

Subject 14—Fire Prevention—Safety Practices—Purchasing and Stores Department; W. T. McCauliff (chairman), assistant general storekeeper, New York Central System

Subject 16—Simplification and Standardization of Stores Stock; W. H. Lloyd (chairman), general storekeeper, Rock Island

Subject 15—Storage and Material Handling Facilities; J. E. Thraff (chairman), assistant general storekeeper, Great Northern

Address: B. T. Adams, general storekeeper, of the Illinois Central: "Importance of Material Handling"

Reports of:

Subject 19—Capacity Loading and Prompt Handling of Cars of Company Materials, and Reduction of Non-Revenue Ton-Miles; C. C. Daughtridge (chairman), assistant division storekeeper, Atlantic Coast Line

Subject 21—Purchasing, Storage and Distribution of Equipment and Supplies Used in Dining Cars, Hotels and Commissaries; R. M. Schilling (chairman), assistant to general purchasing agent, New York Central System

Subject 42—Diesel Locomotive Parts—Purchasing and Storekeeping; C. R. Clements (chairman), Diesel traveling storekeeper, Boston & Maine

Subject 23—Conservation of Materials in Light of Improved Methods and Research; N. B. Coggins (chairman), general storekeeper, Southern

Wednesday, June 30, 1948

Address: Hiland G. Batcheller, president, Allegheny Ludlum Steel Corporation

Annual Essay Contest Committee. (V. N. Dawson, chairman)

Reports of:

Subject 34—Maintenance of Way and Construction Materials (including Signal, Telephone and Telegraph—Purchasing, Storing and Distribution; W. R. H. Mau (chairman), purchasing agent, International Great Northern

Subject 37—Stores Department Organization, Practices, Records and Stock Control; L. H. Haynes (chairman), assistant general storekeeper, Seaboard Air Line

Subject 40—Loss and Damage Prevention—Salvage and Disposition; W. F. Brown (chairman), superintendent scrap and reclamation, Wabash

Reports of Resolutions and Memorials Committees

Election of Officers

NEW AND IMPROVED PRODUCTS

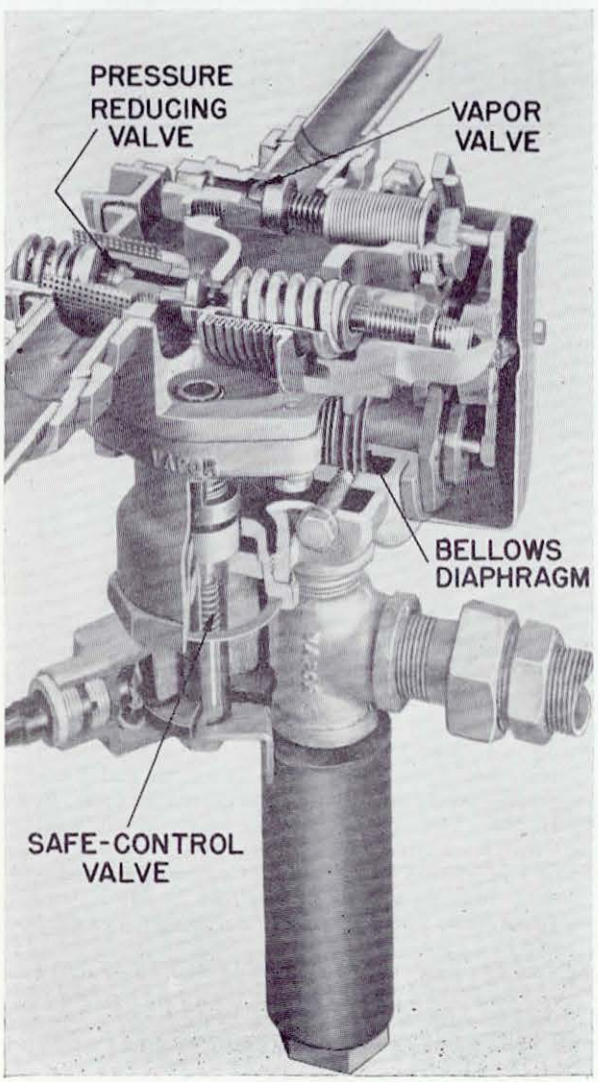
OF THE MANUFACTURERS

Regulators for Steam-Heat Loops

A series of regulators to maintain constant steam pressure in the steam-heat loops that supply steam to passenger-car radiation has been introduced by the Vapor Heating Corporation, 4501 West 16th street, Chicago 23. Known as the Safe-Control regulators, these devices are located between the steam train line and each of the supply loops to control the flow and the pressure of the steam in the loop. The valve construction allows only enough steam to flow through the unit to fill the loop at the desired pressure and to replace the steam used by the radiation. In this way accurate control over the steam pressure in the loop is maintained and the circulation of steam in excess of that required for heating is avoided.

Steam entering the regulator at train-line pressure is reduced to 50 lb. per sq. in. by the pressure-reducing valve. It is further reduced to 8 or 12 lb. per sq. in., depending on the style of regulator, by the vapor valve as the steam leaves the regulator to enter the loop. A Safe-Control valve prevents steam from entering the loop at more than the desired pressure by functioning as a relief valve. When the desired pressure is reached in the loop, steam opens this valve and is jetted onto a liquid-filled, bellows-type diaphragm. The diaphragm expands from the heat of the steam and, in expanding, moves a pivoted operating arm which closes the vapor valve to stop further flow of steam into the supply loop. As the diaphragm cools, it contracts. A spring reopens the vapor valve and again allows the steam to flow into the loop.

In this series of regulators, Nos. 955 and 956 are designed to maintain a 12-lb. pressure in the steam supply loop; Nos. 958 and 959 maintain 8 lb. Both pressure styles of these regulators are equipped with a solenoid that operates the Safe-Control feature to keep steam out of the loop during cooling or to place a regulator under the control of a special thermostat to maintain a minimum amount of heat in a car during layovers.

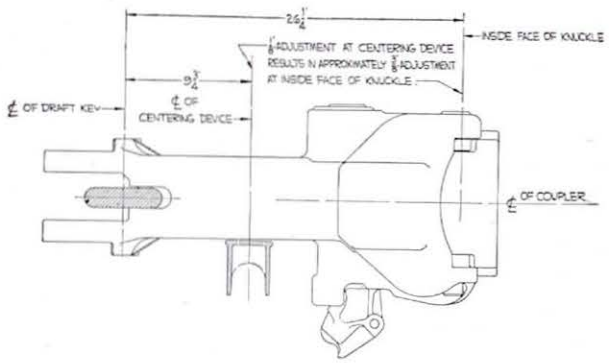


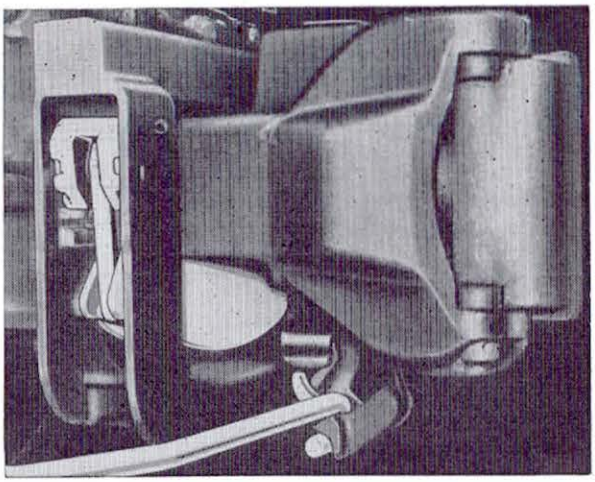
Cutaway view of the vapor safe-control regulator for maintaining a constant steam pressure in a passenger car radiation supply loop

Coupler Height Adjuster

The Standard Railway Equipment Manufacturing Company, Chicago, has recently developed a coupler-height adjustment in combination with a centering device. The centering device itself utilizes the same carry iron and links as have been used on over 1½ million freight cars. It furnishes a strong but flexible support for the coupler shank, and automatically returns the coupler to approximately the central position whenever the car is uncoupled.

The coupled height adjustment is achieved through the utilization of rotatable trunnions. These trunnions rest on supports which are made integral with the striker whether it be welded or cast. The coupler carrier links are hung from the rotatable trunnions in any one of four positions, allowing adjustment when necessary by rotating both trunnions to any one of the various positions. The hole in each trunnion is off center so that the second position raises the coupler carrier ¼ in., the


24 1/4"
INSIDE FACE OF KNUCKLE
1/8" ADJUSTMENT AT CENTERING DEVICE RESULTS IN APPROXIMATELY 3/8" ADJUSTMENT AT INSIDE FACE OF KNUCKLE
9 3/4"
℄ OF DRAFT KEY
℄ OF CENTERING DEVICE
℄ OF COUPLER



Above—Sketch showing how coupler-carrier adjustment is amplified at the knuckle face

Right—Standard centering device with coupler-height adjustment

third raises the carrier ⅜ in. and the fourth raises it ½ in.

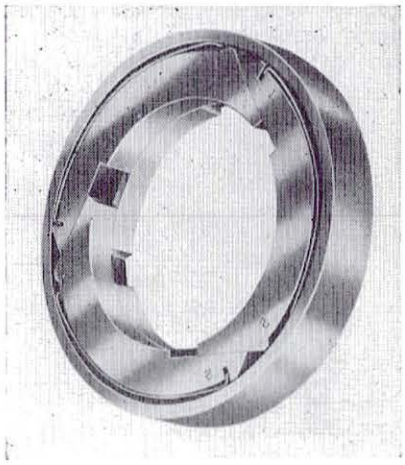
This eliminates the use of ¼ in., ⅜ in. and ½ in. shims. The drawing, illustrating the support of the coupler, indicates how an adjustment of the coupler carrier is amplified about three times at the knuckle face.

New West Railroad Atomizer

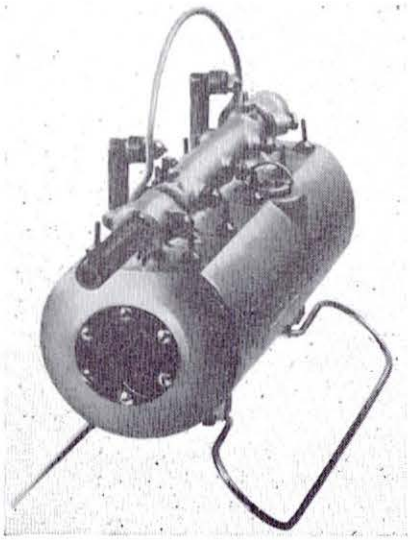
A new atomizer, which uses air pressure to penetrate those places where insects naturally nest and hide, is being marketed by the West Disinfecting Company, 42-16 West st., Long Island City 1, N. Y. The fog of insecticide penetrates pipe spaces, shade holders, grills, air conditioning systems, or under car seats. Ninety seconds of fogging is said to be sufficient for the disinfectant to do its work. Recommended for use with the Railroad Atomizer is West's Vaposector fluid, a highly concentrated permeating insecticide, said to be odorless, non-inflammable, non-staining and non-toxic. Smooth steel runners and a carrying handle enable the operator to pull the unit from place to place.

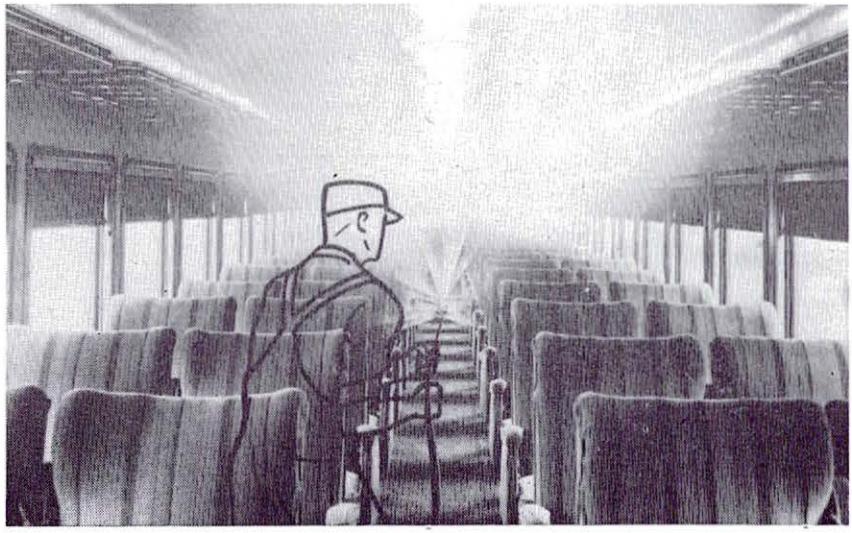
Piston Rod Packing

Everseal metallic piston-rod packing has a patented construction designed for uniform wear. The six interlocking segments are held in place by three pins, located for equal load distribution. A light spring compression, only 50 to



Everseal metallic packing is made in sizes from ½ in. to locomotive piston-rod diameter





Left—The West Railroad Atomizer. Right—The atomizer in action. Note the hose running to the outside of the car

60 lb. recommended, is used to lengthen packing life and give more economical overall operation.

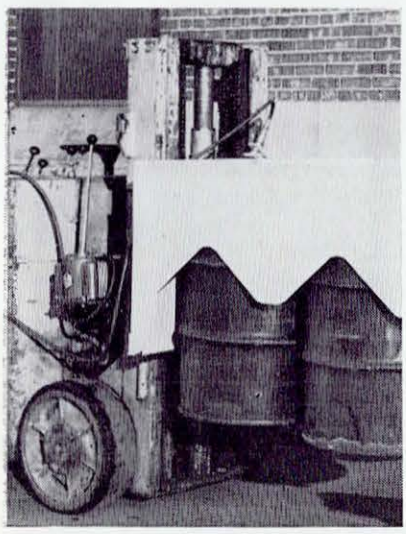
Everseal packing in all sizes to accommodate rods from locomotive piston rod size down to ½ in. in diameter is made by the Spring Packing Corporation, 122 South Michigan avenue, Chicago. The packing itself is largely interchangeable with that of other makes and uses the conventional stuffing-box gland. One boring chuck, available from the manufacturer, handles all sizes of packing.

Drum Carrier Attachment For Fork Trucks

A device designed to carry four fuel drums at one time is a contribution of Trayner-Reinhart, 1627 Willow St., Oakland, Calif., to the growing list of tools whose purpose it is to make easier and less time-consuming the handling of materials. This carrier is said to be capable of application to or removal from any ordinary fork truck in a matter of minutes, after initial installation.

This device makes possible not only the moving of drums from place to place but also enables the operator to stack them three-high. Width, length and weight of the "Tray-Hart" are respectively 48 in., 53 in. and approximately 700 lb.

A positioning device allows the carrier to move four inches to each side, while the positioning angles automatically place the drums, even though the carrier is not directly over them.



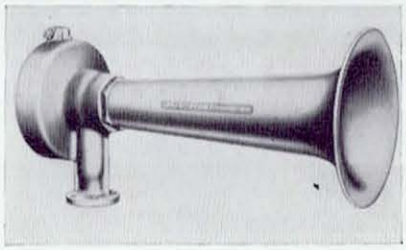
Drum carrier mounted on Mercury electric fork truck. Part of hydraulic unit necessary for operation of carrier can be seen at left

Also, it is reported that drums varying in height by 6 in. and in diameter by 2 in. can be picked up and carried at the same time. The bulkhead permits the operator to shove the drums around in order to get them into the position in which he wants them. The device is distributed by the Pallet Engineering Company, 725 Second street, San Francisco, Cal.

Aluminum Air Horn With Plastic Diaphragm

A cast-aluminum air horn for use on Diesel and electric locomotives is manufactured in a complete range of sizes and tones by the Leslie Company, 177 Delafield avenue, Lyndhurst, N.J. The horn is designed to operate with regular air pressure and to give a sharp, clear signal with an abundance of power.

The range of sizes and tones is determined by the length of the horn. Any pitch gives a sharp, arresting note while a combination of two types gives a dual tone. The horn construction is

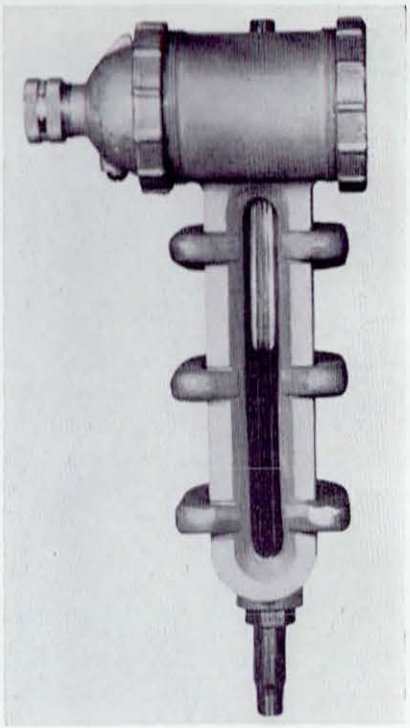


Leslie cast-aluminum air horn with plastic diaphragm

of cast aluminum alloy for corrosion resistance in any atmosphere and for lightness. The diaphragms are plastic and said to be unaffected by oil or moisture and not to freeze. The complete unit consists of a Leslie-Tyfon air horn, a Leslie air-operating valve and a Leslie self-cleaning strainer.

Illuminated Reflex Water Gage

A water gage to intensify the visibility of the water level by spot-lighting the dividing line between the water and the steam has been developed by the Magnus Brass Manufacturing Company, Cincinnati 2, Ohio. Known as the Maglucent illuminated reflex water gage, it has a light housing which can be at either the top or the bottom and which, in conjunction with a silvered-edge reflex glass, is designed to give a reflected light intensity greater than that obtained with a standard gage. Standard railroad fixtures and bulbs are used throughout, and a regular gage can be converted into this gage by simply changing the front part of the gage.



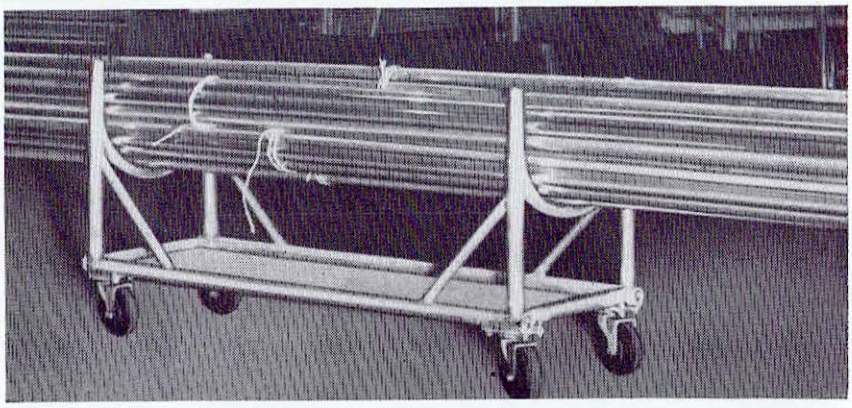
The Maglucent illuminated reflex water gage spotlights the exact water line for both day and night visibility

The body front and the lamp housing are a one-piece bronze casting. This forms a clamping plate to hold the reflex glass in place. The light enters the visible area of the gage through an opening where the lamp housing and the gage front meet. A spot on top of the glass is ground and polished to enable light to enter the glass at this point. The remainder of the glass is silvered on the edges, and the light which enters through the ground and polished portion is reflected from side to side and up and down on the inside of the glass. In the event of an electrical or a bulb failure the gage can be illuminated by an external source of light through the non-silvered faces of the gage glass.

Handles Long Narrow Pieces

The truck pictured here was designed for handling long narrow pieces of pipe, tubing, bar stock, rods or lumber.

Made of aluminum tubing, this new model Rol-Away truck has four casters that enable it to roll in any direction. Its dimensions are 72 in. long, 24 in. wide and 34 in. high. Loads are carried on the U-shaped rack between upright standards. Beneath the rack is a shelf which also can be used for carrying various materials. It is manufactured by the Beall Pipe & Tank Co., 1945 North Columbia blvd., Portland 3, Ore.



Truck specially adapted for handling long materials

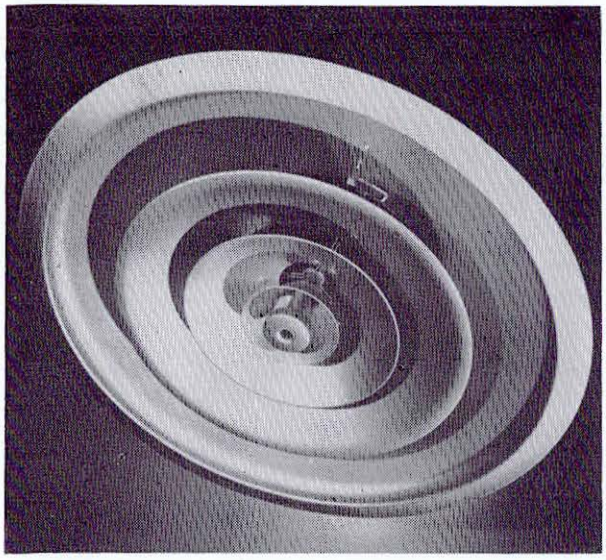
Adjustable Air Diffuser

The type C-1 Anemostat furnishes any desired air-flow pattern by the turn of a knob through an adjustment mechanism which varies the vertical position of the third cone. This produces different air-flow patterns, ranging from draftless diffusion to downward projection, without affecting air resistance. The diffuser utilizes the aspiration principle of drawing air from the room into the device and mixing it with supply air. The proportion of air drawn into the outlet can be varied from 15 per cent to 35 per cent by the adjustment setting.

This adjustable feature permits the device to be used for heating, ventilating or cooling in any combination. The air flow pattern may be modified to meet changing conditions of room occupancy or seasonal weather variations. It can be adjusted to neutralize the effect of local sources of heat gain or loss, or air distribution problems caused by beamed ceilings, nearby walls or columns. It functions equally well mounted flush to the ceiling or on exposed duct work. Adjustment of the device can also be accomplished by remote automatic or manual control. Pneumatically operated control equipment may be used to adjust any number of Anemostats simultaneously.

Installation is simplified and installation time is said to be reduced two thirds over previous methods by a latch-like method of fastening the inner assembly to the outer cone. Since the inner cone assembly is instantly removable, direct readings of the cubic feet per minute of air can be taken in the neck of the Anemostat. This reduces the time required to balance the system.

The type C-1 adjustable air diffuser is manufactured by the Anemostat Corporation of America, 10 East Thirty-ninth street, New York 16.

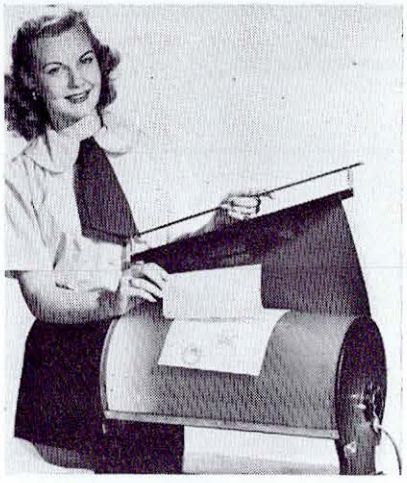


The adjustable type C-1 Anemostat

Photocopy Unit

An improved photocopy unit with a built-in, dial-controlled filter is being introduced by the American Photocopy Equipment Company, 2849 North Clark st., Chicago 14. Operating in subdued office light, without lens or darkroom, this unit can be used to make copies of photographs, drawings, blueprints, tracings or office forms. In addition to the filter there is incorporated in this copier a hard plastic printing surface, which, it is said, insures uniform contact between copy paper and original.

Known as the Apeco Photoexact Copier, this device can copy originals up to full newspaper-page size. Sixty or more copies per hour is the speed claimed for it.



Apeco Photoexact Copier

Reader for Microfilmed Records

A new motor-driven reader, designed to facilitate reference to microfilmed records, has been announced by the Photo Records Division, Remington Rand, Inc., 315 Fourth ave., New York 10. Known as the Film-a-record Reader-Desk it is said that this unit makes possible the loading and the location of any image on a 100-ft. roll of film in less than sixty seconds by an inexperienced operator, without that operator leaving the desk.

One electric motor serves to drive and control the Reader-Desk. Film can be run through it, in either direction, as fast as 150 ft. per min., and can be stopped instantly by turning a single control knob. At idling speeds trans-

Operating the Film-a-record Reader Desk

scriptions can be made with one hand while operating it with the other. Loading, focusing and image positioning are all accomplished in a recess located at the base of the screen. The screen is 14 in. by 14 in. and on it documents are magnified 23 diameters to original size, or larger. The screen is tilted at an angle of 54 deg. and is specially coated to relieve eye strain.

Overall dimensions of the Reader-Desk are 36 in. wide, 32½ in. high and 27 in. deep.

Improved Snubber Spring

Improvements in design to give greater ruggedness and longer life have been incorporated in the style A-7 Volute Snubber Spring, manufactured by the Holland Company, 332 South Michigan avenue, Chicago. The number of working parts has been reduced from three to two—the volute spring, which provides the snubbing effect through friction between the surfaces of the spring coils, and the spring base. A bolt and a rubber plug hold the two working parts together so that the spring can be handled and applied as a single unit.

The style A-7 is stressed lower than previous designs. The volute spring of this snubber has been increased in diameter and utilizes the entire space available in the spring group, making possible an increase in the friction surface area. The spring bar is wider and thicker, giving the spring greater vertical and lateral stability.

The Holland style A-7 volute snubber spring

Blackmer Model 210 rotary hand pump

Portable Hand Pump

An improved rotary hand pump for pumping liquids from drums and other storage facilities, which is said to feature rugged, light-weight construction, has been announced by the Blackmer Pump Company, Grand Rapids, Mich. Known as the Model 210, it is operated by a steel crank with hand grip—115 revolutions of the crank delivering 10 gal. It has a stuffing box with molded plastic packing, which is claimed to eliminate leakage. The pump is self-priming, has a 20-ft. suction lift, and is said to be self adjusting for wear. It can be supplied with various accessories, including suction and discharge pipe, nozzle, drip pan, hose and meter.

Bucket Loader For Gondola Cars

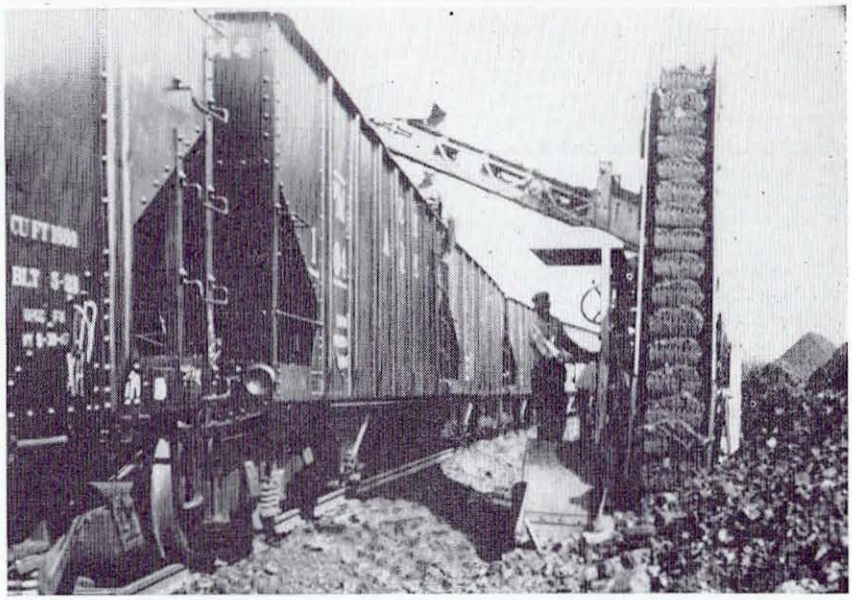
The Pettibone Mulliken Corporation, Chicago, is offering an improved, self-propelled, self-feeding unit for continuous loading directly into cars of stockpiled material such as coal, cinders, sand, gravel, crushed rock and ballast. This unit is known as the PMCO-Haiss gondola-car bucket loader. When used for coal, it is reported that a 56-ton car can be loaded in an average time of 22 min.

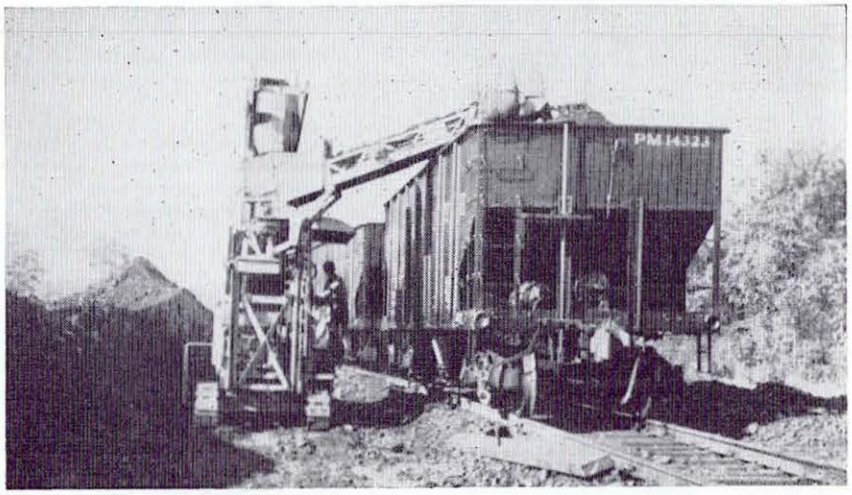
This machine has a crawler-mounted chassis and is powered by a heavy-duty industrial-type gasoline engine. Each chassis is fitted with a rigid "A" frame on which is mounted a chain-driven bucket elevator with high sideboards. The elevator is so mounted on the chassis that it can be raised to the operating position or lowered to a horizontal position by a double-acting power hydraulic cylinder with controls at the operator's platform.

The feed end of the elevator is fitted with revolving steel paddles and a following clean-up blade. The paddles, delivering both uplifting and pick-action blows, break up hard or frozen piles at the ground level and feed the material to the center of the elevator feed, where it is picked up by the suc-

cessive buckets. At the upper end of the elevator the buckets discharge onto a swivel-mounted belt conveyor which, in turn, delivers the material into the car.

Using this unit, it is said to be possible to load a string of cars without any switching other than the initial setting in of the empties and the final pulling out of the loads. If the material is stored in long piles on each side of a track, the loader moves parallel to the track, filling the cars as it progresses. When the pile becomes so depleted that the material is out of reach, a bulldozer is used to move the material to the loader.





Above—Front view of a PMCO-Haiss gondola-car bucket loader in operation loading coal. Below—Rear view of the bucket loader, showing the belt conveyor that delivers the material from the top of the elevator to the car being loaded

Complete Automatic Air-Conditioning Controls

A fully automatic control system for heating, ventilating, and cooling in railroad passenger cars, which relieves trainmen of responsibility other than to turn a switch knob on a control panel, has been announced by the Instrument Division of Thomas A. Edison, Inc., West Orange, N. J. As long as steam, electric power, and coolant are available, the heating, ventilating, and cooling of a car requires no further attention.

This system is now in operation on two modernized 14-roomette sleeping cars and ten new first-class coaches of the Canadian Pacific. Similar controls are being installed in five new bedroomette sleeping cars, and in a number of new sleepers and new coaches for the same line. First installed on the modernized roomette sleeping cars four years ago, the system is said to have demonstrated its ability dependably to assure passenger comfort. Because of the relatively few components and the simplicity of their arrangement, initial costs for labor, parts, piping, and wiring are said to have been comparatively low for the existing installations. Specified temperatures are maintained with an overall accuracy of 1 deg. to 1½ deg. F.

Generally speaking, the Edison system is divided into three phases of fully automatic operation in normal service. Temperature boundaries of each phase are as specified by the railroads. The temperatures stated below are those specified for the Canadian Pacific cars. Other, and quite different, temperature specifications may be met by the system as desired,

The first phase is automatic modulated heating control, which, in the Canadian Pacific cars, continues as long as interior temperatures average below 71 deg. F. and exterior temperature is below 69 deg. F. The second phase is automatic ventilating without heating or cooling, which starts when interior temperatures average above 71 deg. F. and exterior temperature is above 69 deg. F. Automatic ventilating (the operation of blower and exhaust fans while overhead heating and cooling coils are cut off) continues as long as interior temperatures average between 71 deg. F. and 73 deg. F. The third phase is automatic cooling. This may be electro-mechanical or other conventional cooling means, and functions when car temperature rises above 73 deg. F. and outdoor temperature is above 69 deg. F.

Heating Control

During the heating phase steam from the train line passes through a strainer and regulator at each steam-supply loop, to enter the heating system in the car body at 10 lb. per sq. in. The heating demand is handled by overhead heating coil and floor convectors, which work in combination to furnish varying amounts of heat input to the car while in revenue service.

The steam enters an overhead heating coil and the several finned floor convectors through non-electric modulating valves with temperature-sensing bulbs. These modulating valves control the admission of low-pressure steam at rates determined by space temperatures, outdoor temperatures, and control adjustment settings. Control valves for overhead coil and floor convectors are identical in type, but those for the overhead heat control

are of greater capacity than the floor valves.

The self-operated temperature-control valves do not cycle from open to closed, but are true modulators, which control the flow of steam by throttling it to balance closely the heat losses. The quantity of steam passing through the valves is determined by the amount of variation between car-space temperature and the chosen temperature control value. Differences cause corresponding internal temperature-pressure changes in a liquid-vapor-filled valve-actuating system. Modulating-valve operation is not affected by variations in steam-supply pressure, due to a compensating (balancing) bellows contained in each valve body. The temperature-sensing bulb for each floor heat zone is located where convenient, often on the underside of a seat or on a shoe box. No electrical power is used in connection with these valves.

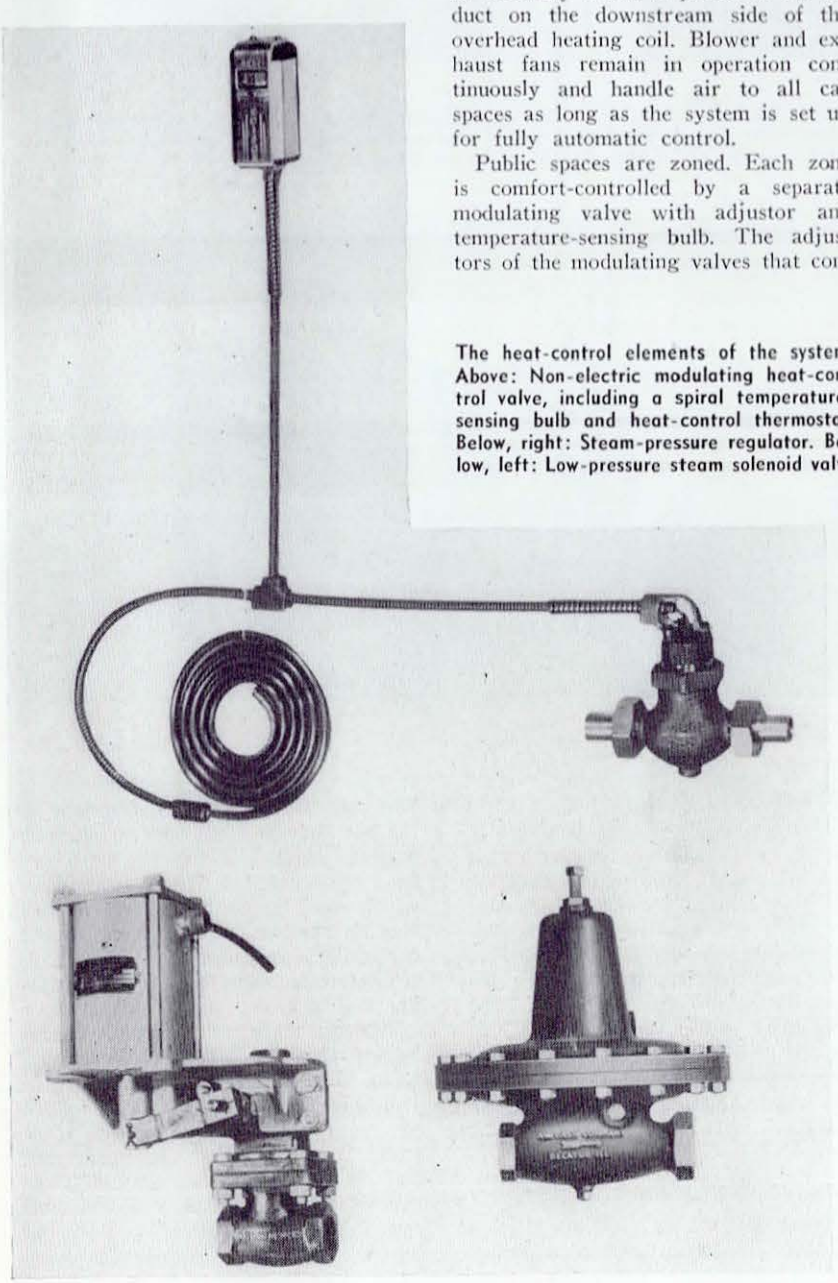
Comfortable space heating is selected by rotating a calibrated dial in the control adjustor. Inside the adjustor is a bellows on which compressive action is imposed or relieved when the dial is rotated, changing the volumetric capacity and internal pressure of the actuating system of the modulating valve.

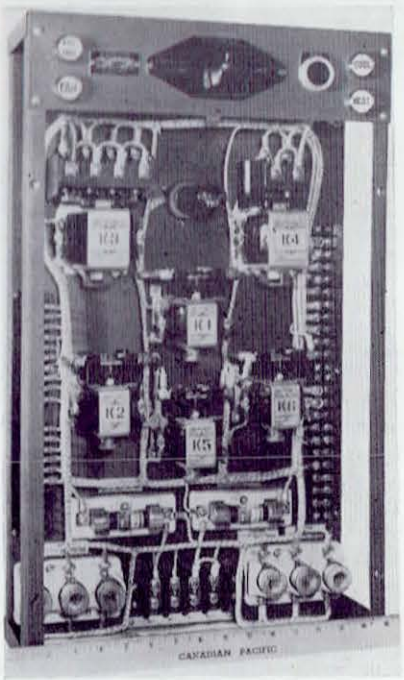
The temperature control adjustor of the modulating valve for the overhead heating coil is normally limited to permit an operating span of 20 deg. F., but may control through a range of 40 deg. F. Both the adjustor and the temperature-sensing bulb are mounted in an assembly which is placed in the air duct on the downstream side of the overhead heating coil. Blower and exhaust fans remain in operation continuously and handle air to all car spaces as long as the system is set up for fully automatic control.

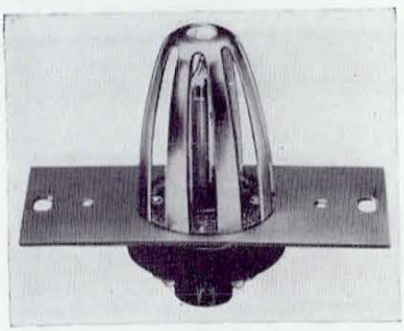
Public spaces are zoned. Each zone is comfort-controlled by a separate modulating valve with adjustor and temperature-sensing bulb. The adjustors of the modulating valves that control heating in the various zones of public spaces are pre-set by yard personnel within a range of 5 deg. F. and are shielded to minimize tampering with the control setting.

In room-type cars, each room is a separate heating zone maintained by floor and overhead heat input. The occupant of such private space may select the temperature desired within an adjustable span at 20 deg. F. to control floor heat delivery to that space.

Two solenoid steam valves, controlled through electrical thermostats, are installed under the car in the low-pressure line downstream from the regulator. Their duty is to prevent steam from entering the car body during the cooling and ventilating phases of automatic operation and to maintain







The heat-control elements of the system. Above: Non-electric modulating heat-control valve, including a spiral temperature-sensing bulb and heat-control thermostat. Below, right: Steam-pressure regulator. Below, left: Low-pressure steam solenoid valve

Top: Electrical elements of the system. Electrical control panel for mechanical cooling. The switch at the top center is set for complete automatic control. The pilot lights to the left and right of the switch indicate in which phase the system is operating. Below: Shielded, bimetallic electrical thermostat, sealed in glass

car temperature at the desired level during parking periods through the cycling of a separate electrical parking thermostat. These solenoid valves are normally open and pass steam only when the electrical thermostat contacts are open and the solenoid is de-energized.

A heat-failure thermostat stops the blower and exhaust fans should steam supply fail when outside temperature is low, thus preventing rapid cooling of the car interior. As soon as steam is again available, the blower and fans are restarted automatically. Should the diaphragm of a steam pressure regulator rupture and permit high-pressure steam to pass through the regulator, an adjacent low-pressure combination trap and relief valve would immediately bleed the high-pressure steam to the atmosphere. It could not enter the car body.

Even should there be complete failure of electrical power, properly controlled warmth is automatically maintained from the floor convectors, whether a car is running or parked, as long as there is adequate steam in the train line. This is, of course, because the automatic modulating control valves are non-electric and the steam solenoid valves are open when de-energized. This feature and careful attention to trapping results in minimum escape of steam to the atmosphere.

Automatic Ventilation

The automatic ventilating phase consists merely of the operation of blower and exhaust fans while the heating and cooling functions are both cut off. In borderline cases, the system will cycle slowly and automatically between heating and ventilating phases, or between ventilating and cooling phases. The ventilating phase is, in effect, a buffer region between the heating and cooling phases of the control system.

Cooling Phase

In the Edison control systems already installed or under construction, both electro-mechanical and ice-activated cooling are used, with cooling control adapted to the recommendations of the suppliers of the cooling equipment.

Temperature-sensing devices for the cooling phase are rugged, sensitive bimetallic electrical thermostats, sealed in glass, which close contacts on rising temperature. These electrical thermostats are unaffected by voltage changes, hence require no fixed series resistances. They are rated at one ampere, but operate at considerably below that current. They also operate in any position and under extreme vibration. In use, these thermostats close or open contacts according to space temperature and operate heavy-duty equipment through magnetic relays on the control panel.

Cooling control is divided into two stages: reduced cooling for moderate cooling demands and full cooling for heavy demands. Reduced cooling involves the cutting off of coolant to one-half of the evaporator coil or coils and reduction of compressor speed for electro-mechanical systems, and involves the reduction of blower speeds for ice-activated systems. Full cooling simply means that, for electro-mechanical cooling, compressor and evaporator operate at full capacity, and for ice-activated cooling, the blower operates at full speed.

There can be automatic cycling between full cooling and reduced cooling, just as between reduced cooling and ventilating, or ventilating and heating phases. It is impossible, however, for any interference to exist between the heating and cooling phases.

Electrical Features

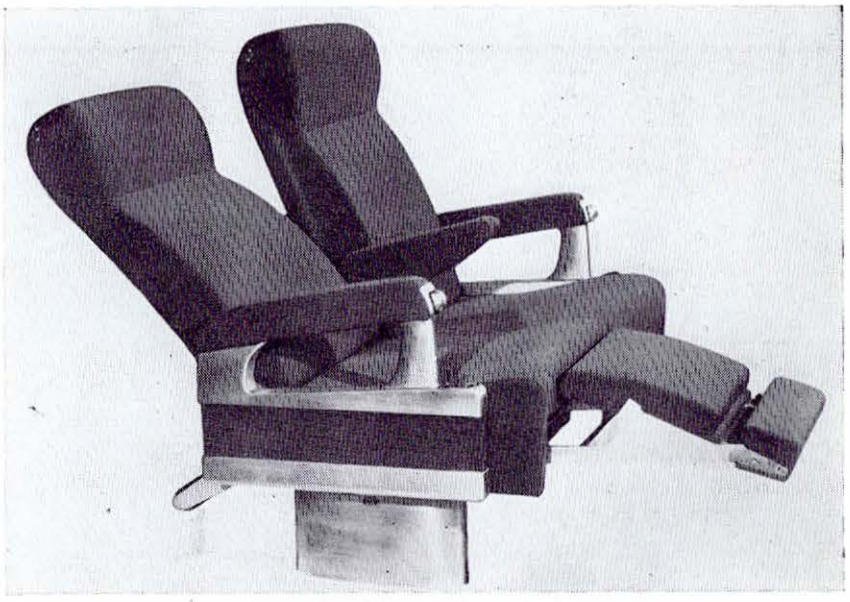
Because the automatic modulating control valves that are used for floor and overhead heating are non-electric, a single small electric control panel is adequate for the entire system. This panel has a polished, transparent front cover through which all panel details are plainly visible. Major panel items are front-of-board mounted and may be readily removed and replaced without removal of the panel. Each electrical component is used well below its rating. All heavy-duty circuits are protected by thermal-type fuses. The maximum power consumption of this system is under 175 watts, regardless of car layout.

The Edison system uses a basic wiring and piping layout, which may be adapted for application to all passenger-car types, both new and modernized. This simplifies maintenance and trouble shooting. The arrangement of the system is such that there is a simple division of responsibility for maintenance and repair between electricians and steamfitters. The relatively few different types of parts which make up the system reduce the number of inventory items necessary to protect maintenance replacements. Electrical equipment failures due to short circuits or continuous overloads are reduced by the use of thermal delay fusing and the operation of all electrical equipment at well below rated capacity.

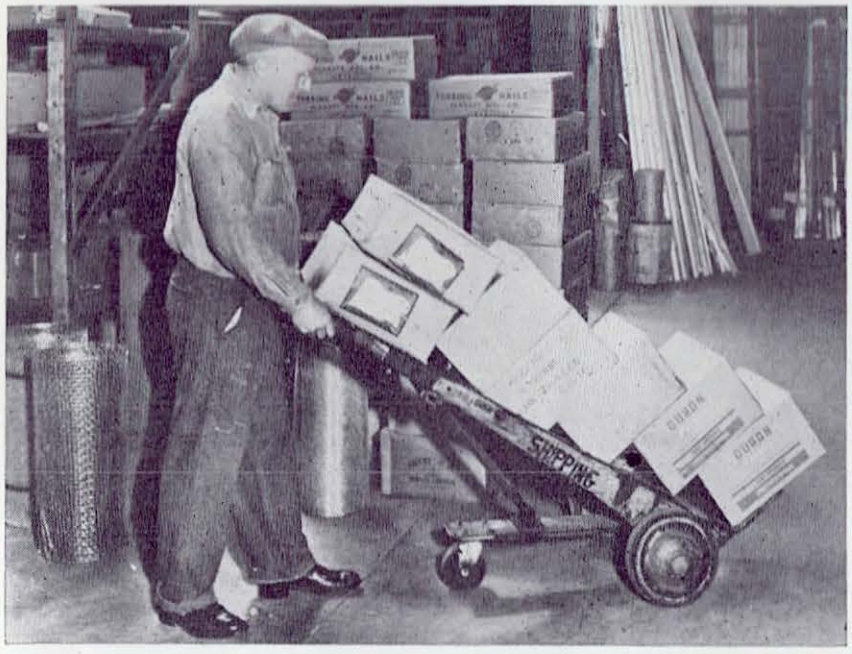
Revolving and Reclining Coach Seat

A revolving-reclining two-passenger coach seat, including several special comfort features, is available from S. Karpen & Bros., 624 S. Michigan avenue, Chicago 5. Incorporated in the seat are individual leg rests which are easily extended out of the front of the seat cushion to the desired angle for leg support and comfort. Individual foot rests are adjustable for use independently or in conjunction with the leg rest. Reclining controls are located at the front of the arm rest, and individual ash trays are recessed in the arm casting convenient to the passenger's hands.

The seat and the back foundation material may be either full depth foam



The Karpen revolving-reclining coach seat with the leg rest extended



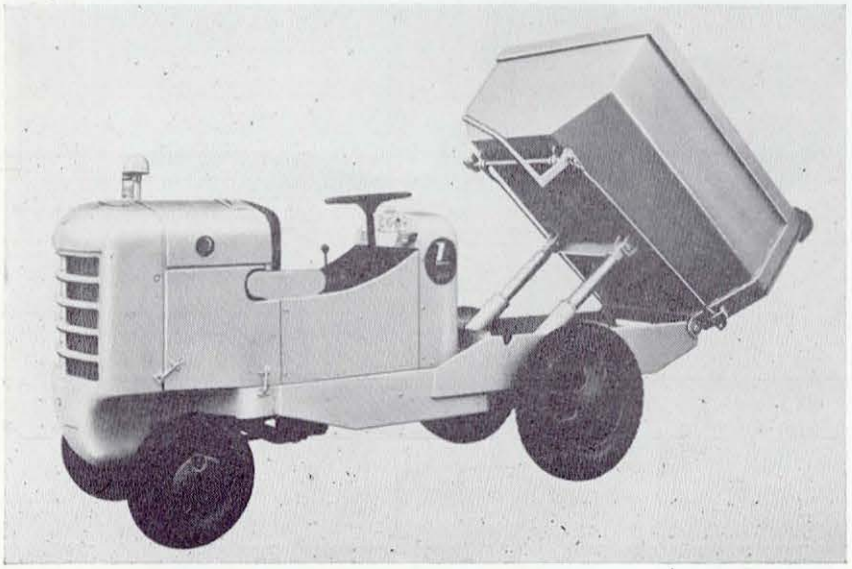
Converting a two-wheel hand-truck to a balanced three-wheel truck

rubber or spring and hair with upholstery to suit the individual railroad. The arm castings are aluminum, polished to a satin finish and protected by lacquer. The kick plates are stainless steel. The foot rest is chromium plated with a rubber tread.

Payloader Buggy

A new addition to its line of material handling equipment, called the "Payloader Buggy," has been announced by the Frank G. Hough Company, Libertyville, Ill. It is a gasoline-engine powered four-wheel, pneumatic-tire hauling unit with a 2 cu. yd. capacity, hydraulically dumped body.

Low and compact, this unit was designed to operate in low headroom areas and narrow places. Overall height is only 5 ft. 8 in. Brakes and power for dumping are both hydraulically operated. Two speeds forward and the same number in reverse are characteristics of the Hough unit. In addition, the manufacturer states that all the main parts of this Buggy are interchangeable with those of the Model HA Payloader Shovel.



"Payloader Buggy" for use in restricted spaces

Attachment for Hand Trucks

A rigid, adjustable support for two-wheeled hand trucks, which will fit any standard truck except one made of aluminum, has been announced by the Melooz Manufacturing Company, 4730 Avalon blvd., Los Angeles 11, Cal. Known as the Universal Tilt Truck Attachment, it allows the hand truck to be converted into a balanced 3-wheeled truck. A telescoping tube, extending upward from the platform to the top crosspiece of the truck, is adjustable by finger-tip control so that the truck can be tilted and locked at any angle desired. The leverage plate is said to make it possible for one man to handle a load which normally would require two men. The third wheel provides free steering in any direction.

Fuel Additives

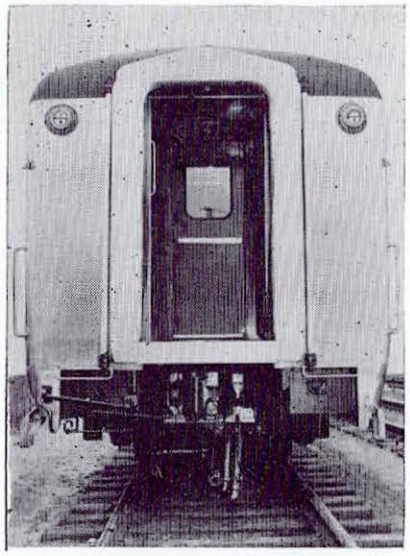
A chemical additive said to improve cylinder lubrication in Diesel or gasoline engines when added to the gasoline or Diesel fuel is manufactured by Lubri-Gas International, Inc., 221 North La-Salle street, Chicago 1. The base stock of the additive is S.A.E. 40 lubricating oil to which has been added about 10 per cent of Lubri-Gas chemicals. The chemicals added to the lubricating oil contain no acids or other materials injurious to metal parts.

When the Lubri-Gas mixture has been added to gasoline or Diesel fuel the oil is said to become a part of the fuel. As the mixture burns in the cylinders, the Lubri-Gas portion, reportedly impervious to the heat developed by the explosion, condenses to its original state and thereby lubricates the moving part in the combustion chamber. As a result friction, drag, carbon deposits and overheating are reduced, and fuel consumption and maintenance cost are said to be lowered.

Built-in Marker Lights

The Dressel built-in electric marker light is designed to take the place of portable oil or electric markers. Two markers are built into the end of the car by cutting a hole in the end sheet and inserting the unit. The unit may be riveted to the end sheet or secured by screws. When screws are used a Vellumoid gasket fits between the unit and the end sheet.

The lights are made in two types by the Lovell-Dressel Company, Inc.,



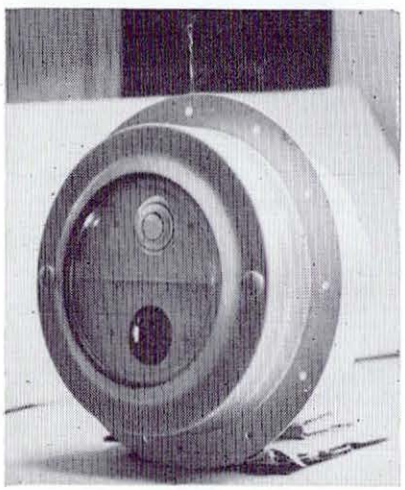
The Dressel built-in electric marker light in place on a passenger car

Arlington, N. J. The No. 5307 light is used for vestibule end installation and can be relamped from either the front or back. The No. 5309 light is used on blind end installations; it is identical with the 5307 except that the back piece is not removeable.

These double-aspect lights are divided into two light-proof compartments with a double-contact bayonet base unit mounted on a Bakelite pad in each compartment. The lights are wired so that only one bulb at a time can be illuminated. The socket design positions the bulb for proper focal distance from the lens, one of which is red and the other—the secondary color—yellow or green. By means of a three-way switch installed either in the wiring or in the unit itself, both bulbs can be turned off or either bulb turned on at any one time. The color indication can be changed, therefore, by throwing a switch rather than by revolving the entire unit.

The units are built of steel, the exterior of which is given a zinc chromate primer and finished with a coat of aluminum paint. The interiors are enameled white. A bronze inlet bushing is brazed into the top of the lamp to furnish an entrance for the cables; this is furnished capped for either ½-in. or ¾-in. threads.

The front lens assembly ring consists of a lens band which holds the two 1¾-in. diameter colored lenses, a ¼-in. steel spacing ring and the 5⅜-in. diameter clear cover glass, the purpose of the latter being to provide a smooth exterior surface which can be easily cleaned. The entire front ring assembly is held to the unit with two positive-locking spring fasteners. A quarter turn of each of the fasteners releases the ring, but the fasteners remain in the ring to prevent loss. The rear plate of the vestibule end light is also equipped with similar fasteners and with a cable clip to prevent fouling.

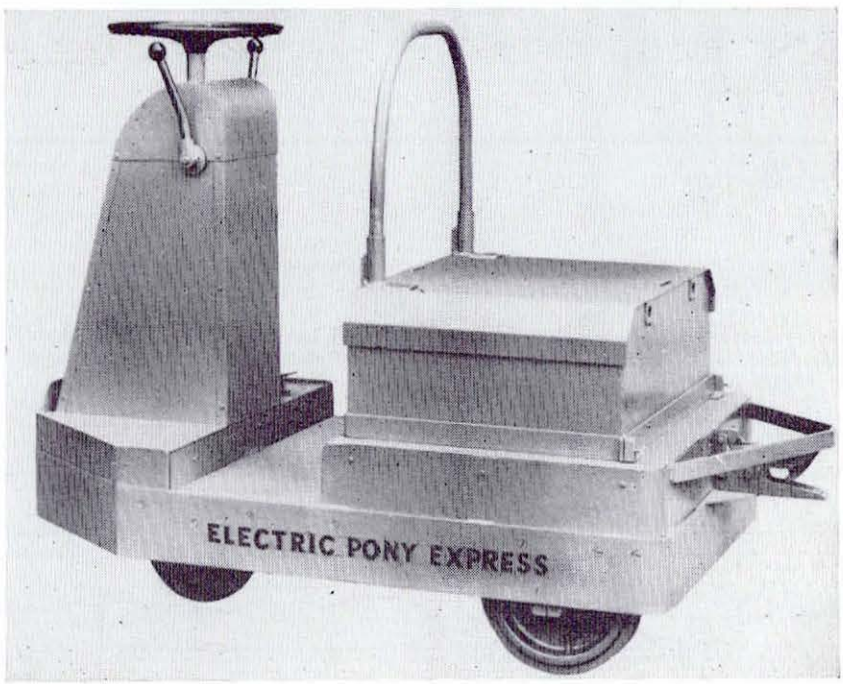


The Dressel marker light has two different colored lenses by which the color indication is selected

Electric Pony Express

A new battery-powered electric truck, featuring a dual set of controls that permits the operator to walk on either side of it or to ride it, has been placed on the market by Rocky Mountain Steel Products, Inc., 1365 Wall st., Los Angeles 15, Cal. The weight of this new unit is 1,595 lb. and its overall length, including the hitch, is 77 in. The turning radius is said to be 58 in. The hitch or coupler is automatic.

Optional maximum speeds of 6 or 8½ m.p.h. are available with 24- or 32-volt battery. Four speeds forward and the same number in reverse are possible. The purchaser has the choice of seat or back rest.

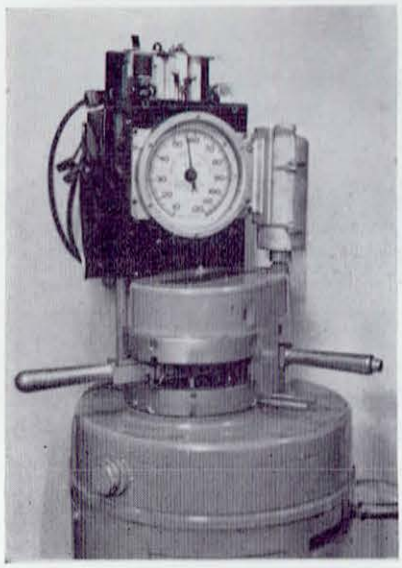


Electric "Pony Express" truck

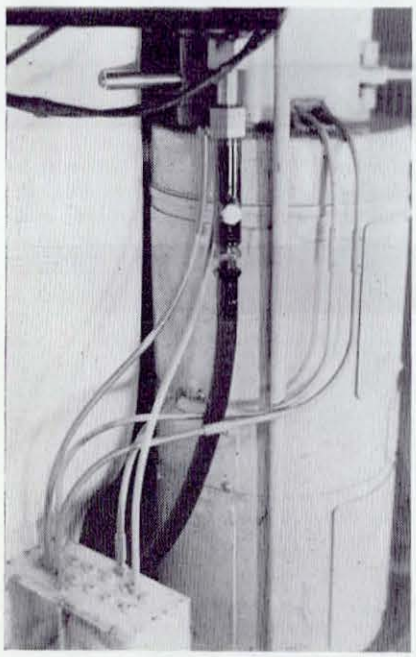
Diesel-Electric Locomotive Operation Recorder

The Valve Pilot Corporation, New York 17, has developed a Diesel locomotive operation recorder as a means for improving locomotive performance and as an aid in bettering the enginemen's operating skill. The instrument has as its foundation the Valve Pilot mechanical speed recorder that has been in use for many years.

The instrument records speed and may incorporate all movements of the transition and dynamic braking lever, throttle lever, and reverse lever. As the tape used in the Diesel locomotive operation recorder is approximately two inches wide it is important that the number of written records be kept within reasonable limits to avoid confusion in analyzing the graphs produced. For that reason one pencil has been designed to record the movements of two controls wherever possible. The five in-



The Diesel-electric locomotive operation recorder mounted at the control stand



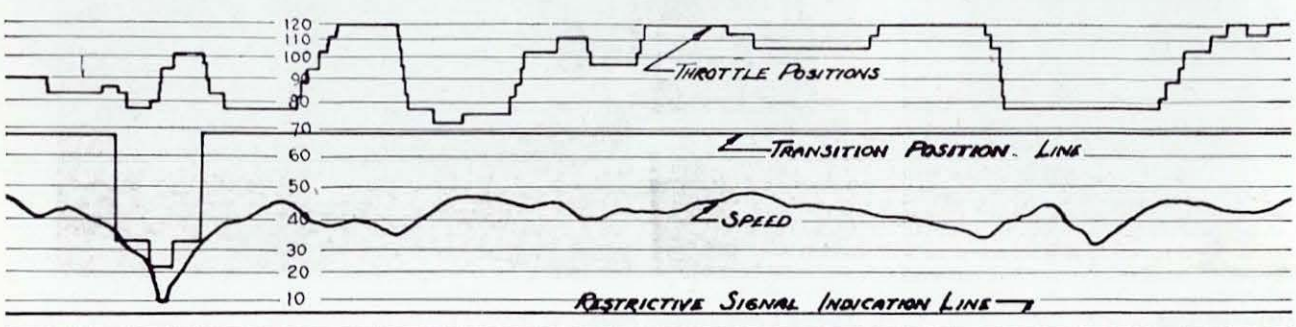
dependent records are made by three pencils. One pencil charts the speed; the second pencil makes both the transition and dynamic-braking records, and the third shows throttle and reverse-lever movements. A fourth pencil can be installed to indicate the forestalling of restrictive train-control signals on those railroads using this type of signalling.

The movement of the pencil recording the speed is actuated by the rotation of a drive connected to the end of a locomotive axle. The motion is transmitted by a link shaft through a compensating gear box, located between the axle and the instrument, which makes it possible to correct for errors caused by wheel tread wear. Either one or two cam boxes, depending on whether the transitions are recorded, are bolted to the cab floor near the base of the control stand. The cam boxes occupy a space approximately 10 in. by 9 in. by 3 in. The pencil recording the movements of the throttle lever and the reverse lever has a mechanical push-pull cable hookup through a cam in the cam box to the throttle lever and moves with the changes in the position of the throttle lever. When the reverse lever is moved to the back-up position the throttle fulcrum block is moved in the cam box and the throttle record is produced on a different part of the tape, thus identifying back-up moves of the locomotive.

The transition and dynamic-braking recording pencil is actuated by a similar cam and cable arrangement connected to the transition and dynamic braking lever. Transitions are recorded in steps as horizontal lines at the miles per hour at which each transition should be made. Dynamic braking can be indicated for those railroads employing this Diesel-electric locomotive feature.

The Diesel locomotive operation recorder can be designed for use with various types of Diesel-electric locomotives as built by the several manufacturers. The instrument is made in four types for 0-60, 10-90, 10-100 and 10-120 m.p.h. operation. However, where the transition record only is required the 10-120 m.p.h. instrument is used.

Above—Connections between the cam box, the control levers and the recorder. Below—Reproduction of an actual tape section from a Diesel-electric freight locomotive having the manual transition

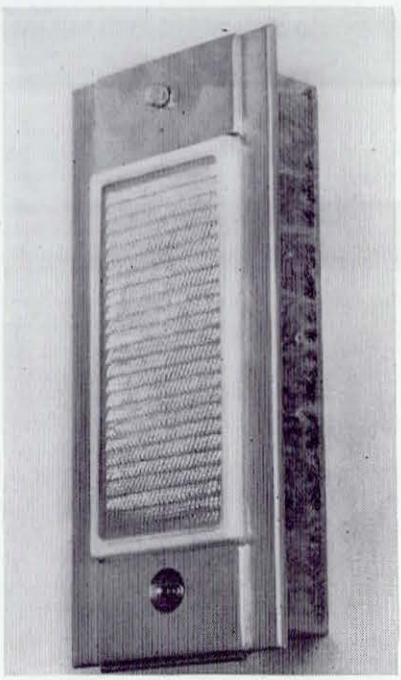


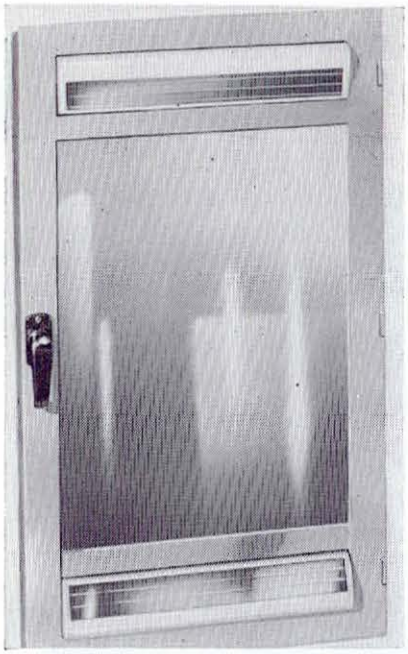
Lighting Fixtures

Three lighting fixtures, one for coaches and two for sleeping cars, are featured products of Luminator, Inc., 120 North Peoria street, Chicago 80. The coach lighting fixture is a continuous fluorescent ceiling light used in conjunction with individual reading lights located in the baggage rack for local illumination. The ceiling light protects seated passengers from direct glare of the bare fluorescent lamp by a light-diffusing enameled glass on the bottom which covers an area on each side of a cylindrical condensing lens. The fixture has sloping side walls into which are built prisms for directing light toward the ceiling panels and increasing the light on these panels by about one-third.

Magnifying lensed glassware illuminates both the top and the bottom of the mirror used in the medicine cabinet door installed in sleeping car equipment. The top light is mounted high enough above the floor to illuminate the top of a person's head for combing the hair;

Fluorescent berth light with prismolens glassware

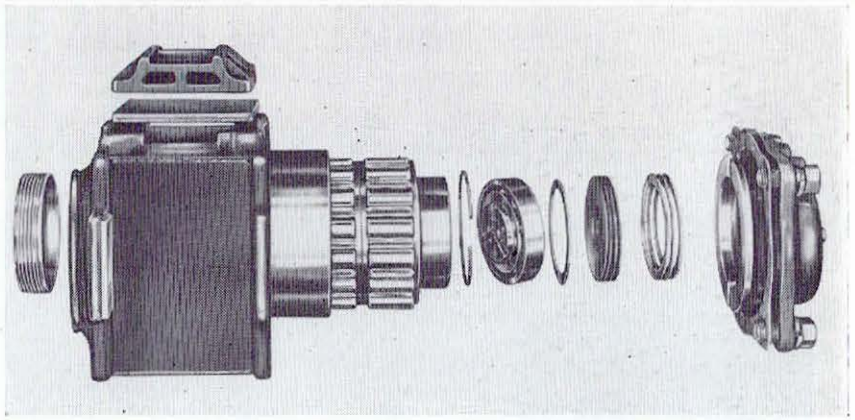




Illuminated medicine cabinet door for use in sleeping cars

the bottom unit illuminates the under side of the face for shaving. The light pattern is directed and controlled to avoid disturbing other passengers seated in the room. The unit is constructed of aluminum extrusions and is furnished in either a satin finish or with a prime coat for later finishing by the users.

The third product is a fluorescent berth light with prismolens glassware. This unit is built around a 12-in., 13-watt fluorescent tube and may be operated on either 64 volts d.c. or 110 volts a.c. Provision is made in the unit for a 6-watt blue night light.

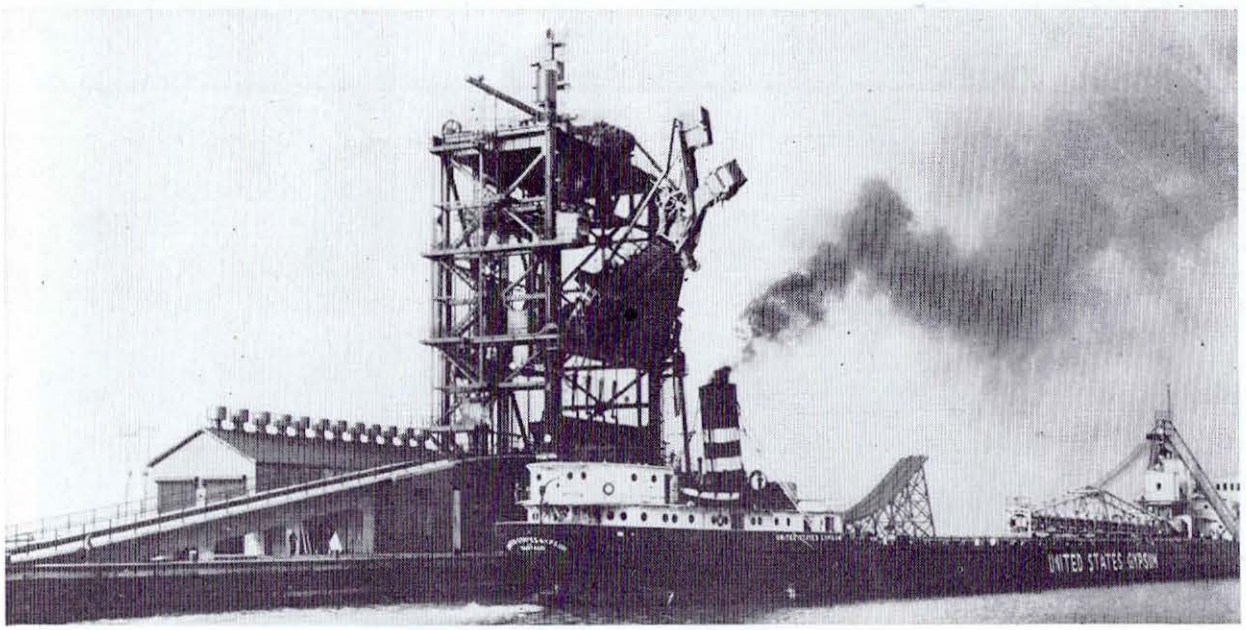


Exploded view of the Fafnir grease lubricated journal box showing roller bearings for the radial load and the large ball bearing to take the thrust load

Grease Lubrication for Roller-Bearing Journal Box

A combination ball- and roller-bearing journal box designed for grease lubrication exclusively has been announced by the Fafnir Bearing Company, New Britain, Conn. Straight roller bearings are used in this box to support the radial load, while the lateral thrust is taken by a single-row ball bearing near the outside end of the box.

Among the advantages said to result from grease lubrication are reduced maintenance cost through longer periods between relubrications and longer bearing life due to greater cleanliness. Greater protection against corrosion during inactive periods and less loss of lubricant are said to result from the use of grease lubrication. Dead weight per car has been reduced by the lighter and more compactly designed journal box. As the grease used is satisfactory through temperature ranges varying from extreme summer heat to 40 deg. below zero Fahrenheit, it is a suitable all-year lubricant.



New Baltimore & Ohio coal dock at Lorain, Ohio

ESTIMATE 9 MONTHS' CAPITAL OUTLAYS AT $953 MILLION

Increase of 69.3 per cent above comparable 1947 figure indicated in report to I.C.C. bureau; "Monthly Comment" also shows relationships to operating revenues of traffic and general expenses and "payments for services rendered by other than employees"

Latest estimates submitted by Class I line-haul steam railways to the Interstate Commerce Commission's Bureau of Transport Economics and Statistics indicate that those roads will make gross capital expenditures of $953,488,000 during this year's first nine months, an increase of 69.3 per cent above the $563,123,000 spent during the comparable three-fourths of 1947. The figures, presented in the latest issue of the bureau's "Monthly Comment," show that $725,862,000, or 76.1 per cent, of the planned outlays for this year's first nine months will be for equipment and $227,626,000, or 23.9 per cent, for road.

The estimates in the nine-months figures are for the second and third quarters, the remainders of the totals being actual expenditures for the first quarter, when outlays aggregated $262,181,000, an increase of 74.1 per cent above the $150,615,000 spent in the first quarter of 1947. Of this year's first-quarter total, $203,-159,000, or 77.5 per cent, was spent for equipment, and $59,022,000, or 22.5 per cent, for road.

The estimates for the second quarter indicate that the total outlay will be $330,447,000, including $246,-905,000, or 74.7 per cent, for equipment, and $83,542,-000, or 25.3 per cent, for road. For the third quarter the total is put at $360,860,000, including $275,798,000, or 76.4 per cent, for equipment, and $85,062,000, or 23.6 per cent, for road. These estimates, the bureau says, do not include returns from three carriers which made first-quarter expenditures totaling $5.7 million.

Traffic and General Expense Ratios

Among other articles in the "Comment" are those which show for large Class I roads the ratios of traffic and general expenses to revenues and the "payments for services rendered by other than employees." These latter are disbursements which the commission requires the railroads to show in a schedule of their annual reports; they include "payments, fees, retainers, commissions, gifts, contributions, assessments, bonuses, pensions, subscriptions, allowance for expenses, or any form of payment amounting in the aggregate to $5,000 or more to any . . . person (other than one of respondent's employees . . .) for services or as a donation." Under instructions covering the schedule, the bureau says in a footnote, "payments which both as to their nature and amount may reasonably be regarded as ordinarily connected with the routine operation, maintenance and construction of a railroad *are excluded.*"

The compilations show that the Chesapeake & Ohio's 1948 ratio of traffic and general expenses to revenues was higher than that of any of the other roads covered; and that it made in 1947 the largest payments, relatively, for "services rendered by other than employees." The 1948 ratios of traffic and general expenses range from the C.&O.'s 7.7 per cent to the Reading's 3.6 per cent. These 1948 ratios are compared by the bureau with those of 1940, when the range was from 8.8 per cent for the Chicago, Rock Island & Pacific to 4 per cent for the Reading and the Norfolk & Western. With adjustment to include the Pere Marquette, the C.&O.'s 1940 ratio was 4.7 per cent.

The bureau's discussion of the figures calls attention to the fact that the 1948 ratios were lower than those of 1940 in all but three cases—C.&O., N.&W. and New York, New Haven & Hartford. The N.&W.'s 1948 ratio was 5.3 per cent, while the New Haven's was 5.4 per cent as compared with 5 per cent in 1940. Similar data for Class I railroads as a whole show that the 1948 ratio was 5.1 per cent as compared with 1940's 6 per cent. The 1948 range was from 4.7 per cent in the Eastern district to 6.5 per cent in the Pocahontas region; in 1940, the Pocahontas region was low with a ratio of 4.4 per cent, while the Western district was high with 7.3 per cent.

Payments for Outside Services

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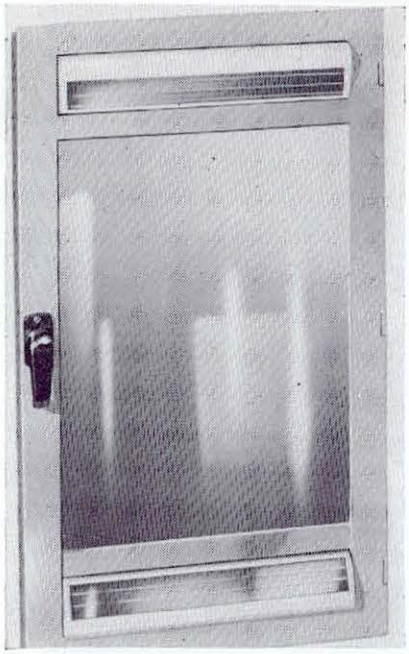
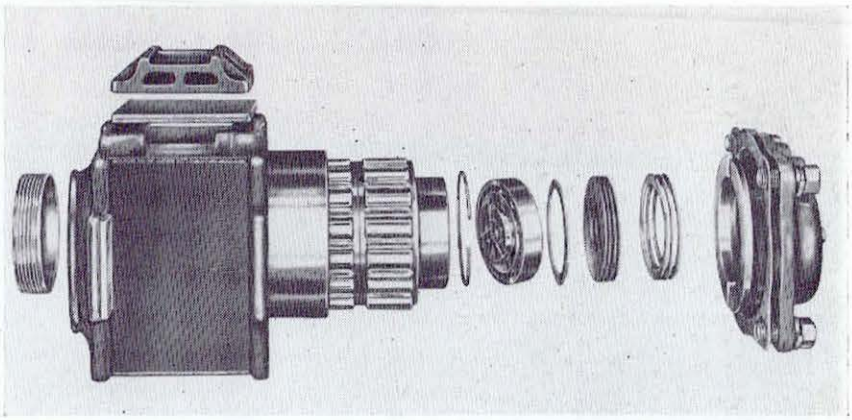


Illuminated medicine cabinet door for use in sleeping cars

the bottom unit illuminates the under side of the face for shaving. The light pattern is directed and controlled to avoid disturbing other passengers seated in the room. The unit is constructed of aluminum extrusions and is furnished in either a satin finish or with a prime coat for later finishing by the users.

The third product is a fluorescent berth light with prismolens glassware. This unit is built around a 12-in., 13-watt fluorescent tube and may be operated on either 64 volts d.c. or 110 volts a.c. Provision is made in the unit for a 6-watt blue night light.

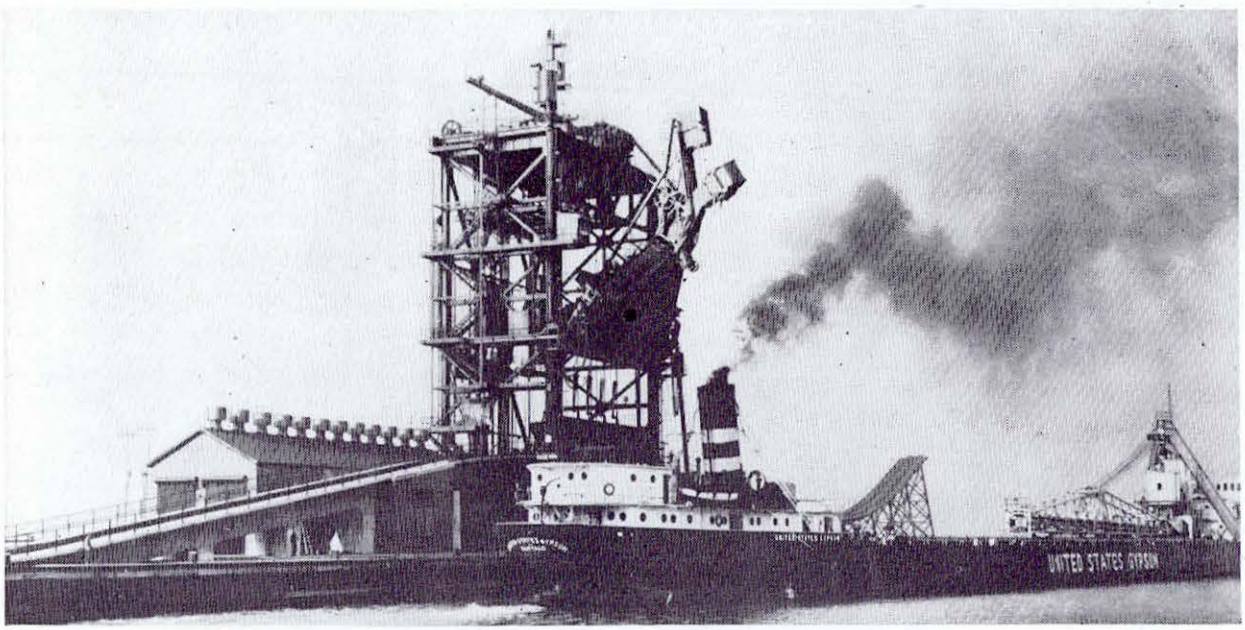


Exploded view of the Fafnir grease lubricated journal box showing roller bearings for the radial load and the large ball bearing to take the thrust load

Grease Lubrication for Roller-Bearing Journal Box

A combination ball- and roller-bearing journal box designed for grease lubrication exclusively has been announced by the Fafnir Bearing Company, New Britain, Conn. Straight roller bearings are used in this box to support the radial load, while the lateral thrust is taken by a single-row ball bearing near the outside end of the box.

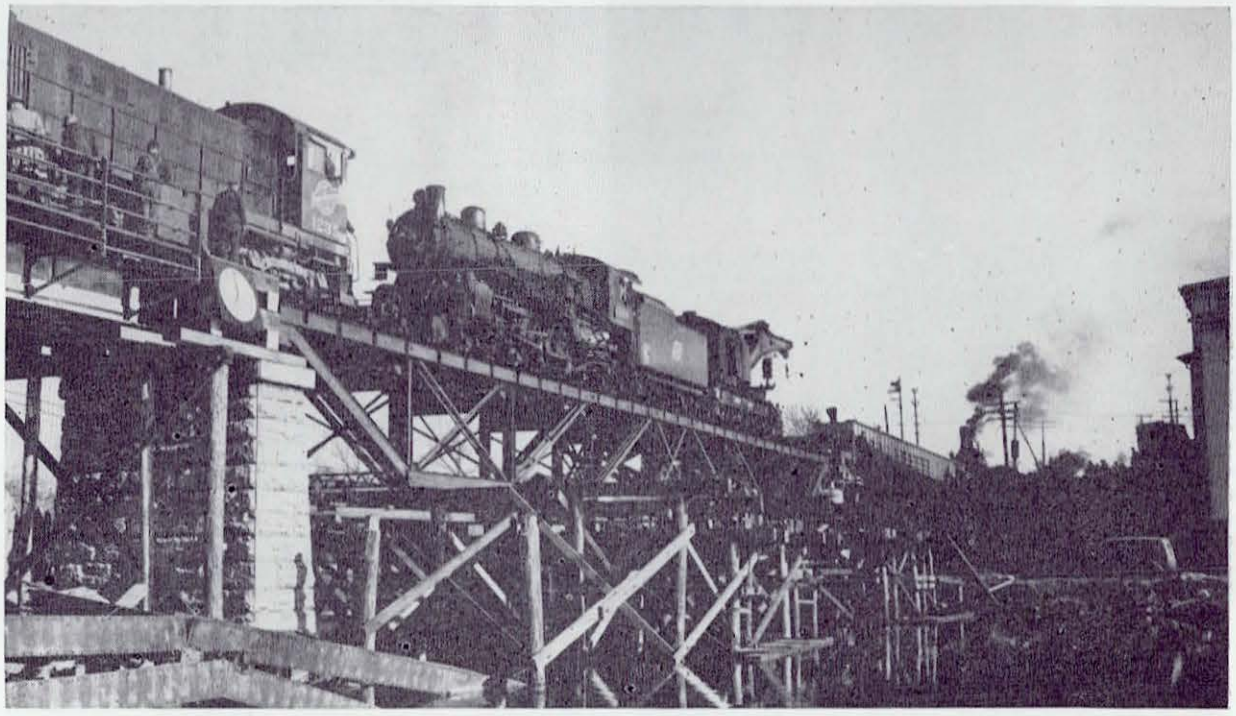
Among the advantages said to result from grease lubrication are reduced maintenance cost through longer periods between relubrications and longer bearing life due to greater cleanliness. Greater protection against corrosion during inactive periods and less loss of lubricant are said to result from the use of grease lubrication. Dead weight per car has been reduced by the lighter and more compactly designed journal box. As the grease used is satisfactory through temperature ranges varying from extreme summer heat to 40 deg. below zero Fahrenheit, it is a suitable all-year lubricant.



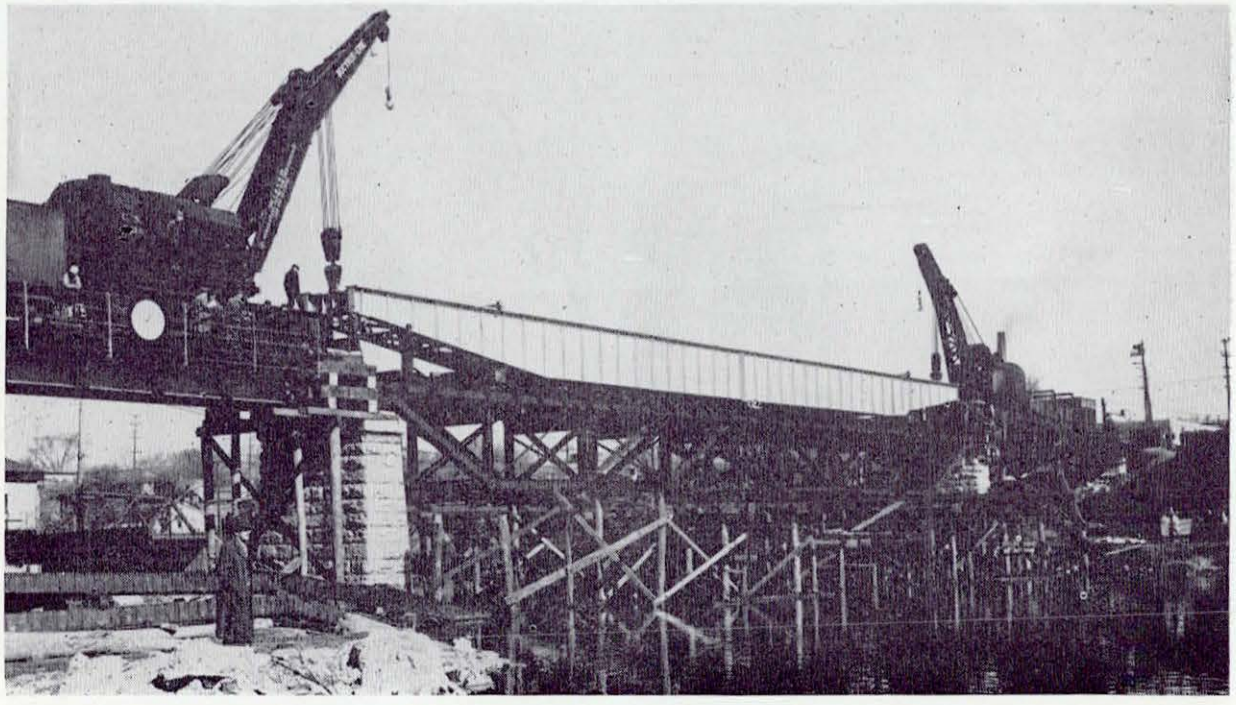
New Baltimore & Ohio coal dock at Lorain, Ohio

SHIPS AND ERECTS 162-FT. SPAN AS UNIT

By A. R. HARRIS
Engineer of Bridges
Chicago & North Western



7:00 a.m.—Getting ready to couple a Diesel switcher to a steam locomotive in preparation for pulling the new span (background) on the bridge

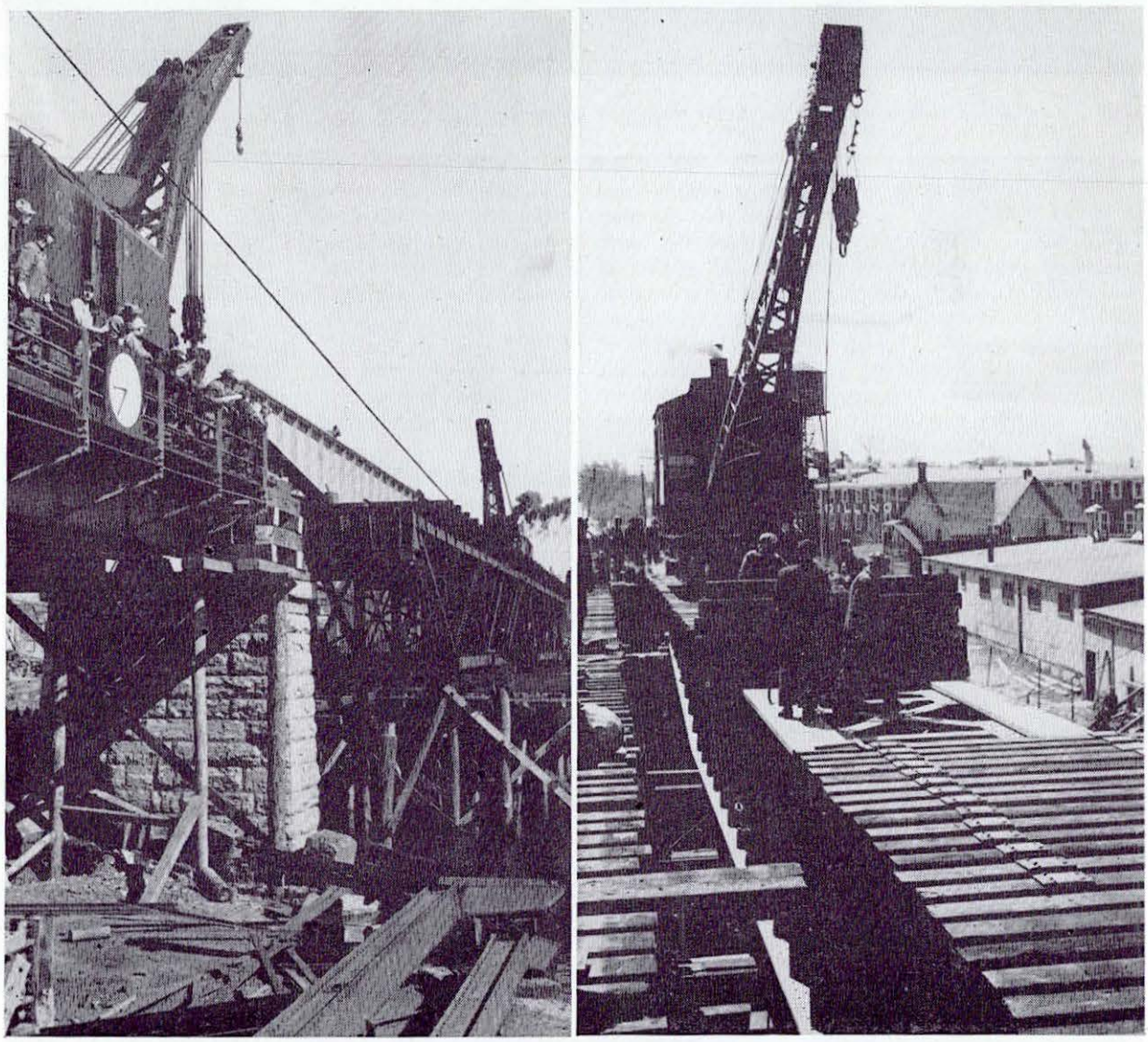


8:05 a.m.—The new span, in position on the old bridge, has been lifted into the clear by the wreckers

Long deck-girder span for installation on the Chicago & North Western over Sheboygan river was completely shop-riveted to obtain advantages in erection

In a recent bridge-renewal project involving a single-track span across the Sheboygan river, at Sheboygan, Wis., the Chicago & North Western erected the longest shop-riveted span ever to be shipped from the plant of the American Bridge Company at Gary, Ind. This was a deck plate-girder span, 162 ft. long, continuous over three supports, and was installed to replace a pin-connected deck-truss drawspan, erected in 1893, which was no longer adequate to carry present-day loads.

Decision to ship the new main span completely shop-riveted was based on several considerations. One of these was the desire to avoid the necessity for constructing the elaborate erection falsework that would have been required if the span had been shipped in two sections. As it was, the only falsework needed



Left—8:35 a.m.—With the new span suspended from the wrecker hooks, the old drawspan is being rolled to one side on falsework bents. Right—10:15 a.m.—The span has been lowered into final position and the track is being laid on the girders

12:50 p.m.—Finishing touches are being put to the track work on the new span

consisted of timber bents for supporting the old span as it was rolled out of position to one side. Another consideration, in deciding to shop-rivet the span completely, was a desire to eliminate the driving of field rivets of long grip, such as would have been required in the splices for the heavy flanges of the girders.

Because of its length and weight (280,000 lb.) the shipment of the new main span presented something of a problem. Five cars were required for this purpose, including two heavy-duty flat cars of 400,000 lb. capacity on which the span was supported. An idler car separated the two carrying cars, and in addition there was an idler car at each end.

In addition to the 162-ft. main span the original bridge had a 75-ft. pin-connected deck-truss approach span at the south end, and a 90-ft. approach span of similar construction at the north end. As part of the renewal project the approach span at the south end was replaced with two I-beam spans, 30 ft. 5 in. and 45 ft. 5 in. in length, respectively. At the north end two new I-beam approach spans were installed, each 45 ft. 5 in. long. The old substructure consisted of masonry abutments, piers and center pier, and, being in good condition, these were retained with such alterations as were necessary to adapt them as supports for the new spans. In addition, a steel bent was installed at each end to support the adjoining ends of the approach spans.

The legs of these bents are each supported on a pedestal consisting of four H-beams driven to rock and topped with a fabricated steel cap. An interesting feature of these pedestals is the fact that the H-beams were given a protective coating of shotcrete before being driven.

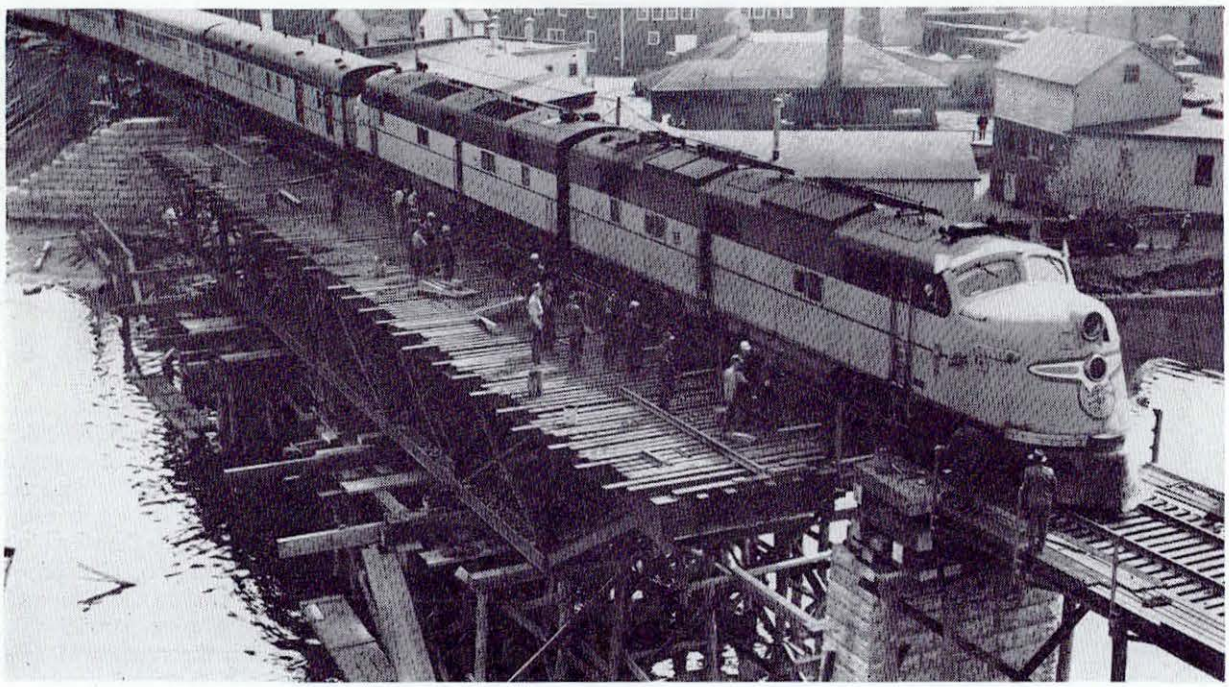
While the Sheboygan river is not at present a navigable stream the new span was so designed that, by the addition of turning machinery, it can be utilized as a drawspan in the event that this should become necessary in the future. This span is designed for Cooper's E-65 loading. The girders are 7½ ft. deep at the middle support and are spaced 7 ft. center to center.

In preparing the span for shipment an oak bolster was bolted transversely to the bottom flanges near each end. Since the plan adopted for installing the span involved sliding it longitudinally on the track rails, these bolsters were designed to work with this plan. Each of them was shod with a 24-in. I-beam laid flat, with the flanges notched to receive the rails. This meant that there would be a 24-in. bearing at each point of support on the rails. The notches in the I-beam flanges, which had contours similar to the heads of the rails, served to prevent the span from shifting sideways while being dragged along on the track.

On April 29 the span was unloaded from the cars at a point immediately north of the bridge site by two wreckers, one of 160 tons capacity from Milwaukee, which is south of Sheboygan, and one of 150 tons capacity from Green Bay, Wis., which is north of Sheboygan.

It was placed temporarily on blocking located adjacent to the main track. For connecting the wrecker hooks to the span specially designed plate shackles were used, which were attached to pin plates shop-riveted to the span.

The new span was installed on the morning of April 30. Previously the new approach spans had been erected and a number of transverse timber bents had been constructed on which the old main span was to be rolled into the clear. Also, the new steel center



2:30 p.m.—The northbound "Shoreland 400" streamliner moves over the completed span

tower had been assembled on timber staging at one side of the center pier in preparation for being moved into position on skids at the proper time.

The first step in the actual work of installing the new span was to lift it over on the running rails of the main track, using the two wreckers. The wrecker hooks were then disconnected and the wrecker at the south end was moved ahead (toward the bridge) about 60 ft. The south end of the span was then connected to the coupler of the wrecker by a single piece of wire rope ⅞ in. in diameter, which was attached to each girder and which passed over a sheave block connected to the coupler pin by a special bent plate.

Using a Diesel-electric switching locomotive and a steam locomotive coupled to the wrecker, the span was then dragged on the rails into position over the old span. Grease was applied to the tops of the track rails ahead of the span as it was dragged along. The movement of the span in this manner proceeded smoothly and without difficulty, and no damage to the rails or ties occurred.

The wreckers were then brought in close to the ends of the new span and their front outriggers were extended and supported by blocking placed on the tops of the piers and on falsework bents provided for this purpose. Next, the new span was lifted clear of the track rails by two wreckers, and held in the raised position.

The old drawspan, with the center drum attached, was jacked up a few inches, and inverted roller units were placed at eight points between the bottom chords of the old span and the four transverse falsework runway bents. The span, with the deck in place, was then pulled out to one side of the bridge by hoisting cables reeved through double blocks. The actual time required to pull the span to one side was 5 min.

In the next step the steel center tower was shifted on skids into place on the old masonry pier. The new span was then lowered to the permanent bearings by the wreckers. The span has rocker expansion bearings at each end, and pin bearings at the center pier. The new ties were brought out to the span and distributed by locomotive crane at one end and wrecker at the other. The rails from the old drawspan were relaid on the new span.

The schedule of operations on April 30 was as follows:

5:00 a.m.—Began work.
7:05 a.m.—Began to drag span along track rails.
8:05 a.m.—New span in position over drawspan and lifted clear of the rails by the wreckers.
8:35 a.m.—Old drawspan rolled out to one side of bridge on falsework bents.
9:05 a.m.—Center tower in place on center pier.
9:55 a.m.—New span in place on permanent bearings.
2:00 p.m.—Deck and track rails in place on span and bridge ready for traffic.
2:30 p.m.—"Shoreland 400" Streamliner train crossed the bridge.

Traffic over this bridge normally consists of passenger trains, including two "400" streamliners daily, and switching movements to local industries. Through freight traffic is handled over a cut-off that by-passes the bridge. While the erection of the new main span was in progress two passenger trains were handled over this cut-off.

The erection work was carried out by the railroad's forces under the general direction of E. C. Vandenburg, chief engineer. The erection plans were prepared in the office of the writer. The field work was under the direction of J. P. Datesman, division engineer, and under the supervision of A. H. Deno, supervisor of bridges and buildings, and R. Henkey, steel crew foreman.

ESTIMATE 9 MONTHS' CAPITAL OUTLAYS AT $953 MILLION

Increase of 69.3 per cent above comparable 1947 figure indicated in report to I.C.C. bureau; "Monthly Comment" also shows relationships to operating revenues of traffic and general expenses and "payments for services rendered by other than employees"

Latest estimates submitted by Class I line-haul steam railways to the Interstate Commerce Commission's Bureau of Transport Economics and Statistics indicate that those roads will make gross capital expenditures of $953,488,000 during this year's first nine months, an increase of 69.3 per cent above the $563,123,000 spent during the comparable three-fourths of 1947. The figures, presented in the latest issue of the bureau's "Monthly Comment," show that $725,862,000, or 76.1 per cent, of the planned outlays for this year's first nine months will be for equipment and $227,626,000, or 23.9 per cent, for road.

The estimates in the nine-months figures are for the second and third quarters, the remainders of the totals being actual expenditures for the first quarter, when outlays aggregated $262,181,000, an increase of 74.1 per cent above the $150,615,000 spent in the first quarter of 1947. Of this year's first-quarter total, $203,159,000, or 77.5 per cent, was spent for equipment, and $59,022,000, or 22.5 per cent, for road.

The estimates for the second quarter indicate that the total outlay will be $330,447,000, including $246,905,000, or 74.7 per cent, for equipment, and $83,542,000, or 25.3 per cent, for road. For the third quarter the total is put at $360,860,000, including $275,798,000, or 76.4 per cent, for equipment, and $85,062,000, or 23.6 per cent, for road. These estimates, the bureau says, do not include returns from three carriers which made first-quarter expenditures totaling $5.7 million.

Traffic and General Expense Ratios

Among other articles in the "Comment" are those which show for large Class I roads the ratios of traffic and general expenses to revenues and the "payments for services rendered by other than employees." These latter are disbursements which the commission requires the railroads to show in a schedule of their annual reports; they include "payments, fees, retainers, commissions, gifts, contributions, assessments, bonuses, pensions, subscriptions, allowance for expenses, or any form of payment amounting in the aggregate to $5,000 or more to any . . . person (other than one of respondent's employees . . .) for services or as a donation." Under instructions covering the schedule, the bureau says in a footnote, "payments which both as to their nature and amount may reasonably be regarded as ordinarily connected with the routine operation, maintenance and construction of a railroad *are excluded*."

The compilations show that the Chesapeake & Ohio's 1948 ratio of traffic and general expenses to revenues was higher than that of any of the other roads covered; and that it made in 1947 the largest payments, relatively, for "services rendered by other than employees." The 1948 ratios of traffic and general expenses range from the C.&O.'s 7.7 per cent to the Reading's 3.6 per cent. These 1948 ratios are compared by the bureau with those of 1940, when the range was from 8.8 per cent for the Chicago, Rock Island & Pacific to 4 per cent for the Reading and the Norfolk & Western. With adjustment to include the Pere Marquette, the C.&O.'s 1940 ratio was 4.7 per cent.

The bureau's discussion of the figures calls attention to the fact that the 1948 ratios were lower than those of 1940 in all but three cases—C.&O., N.&W. and New York, New Haven & Hartford. The N.&W.'s 1948 ratio was 5.3 per cent, while the New Haven's was 5.4 per cent as compared with 5 per cent in 1940. Similar data for Class I railroads as a whole show that the 1948 ratio was 5.1 per cent as compared with 1940's 6 per cent. The 1948 range was from 4.7 per cent in the Eastern district to 6.5 per cent in the Pocahontas region; in 1940, the Pocahontas region was low with a ratio of 4.4 per cent, while the Western district was high with 7.3 per cent.

Payments for Outside Services

As to payments for services rendered by other than employees, the compilation shows that the C.&O.'s 1947 expenditures for that purpose were equivalent to 1.26 per cent of its operating revenues. The percentages spent by other large roads shown in the tabulation ranged from 0.2 per cent for the Chicago, Milwaukee, St. Paul & Pacific to 1.13 per cent for the New Haven. The bureau observes that "relatively large amounts covering reorganization fees" are included in the case of the New Haven. In addition to the C.&O. and New Haven, the only other ratio above 1 per cent is that of the Atchison, Topeka & Santa Fe—1.01 per cent. The dollar figures shows that the C.&O.'s expenditures totaled $3,632,072, as compared with $5,138,803, or 0.57 per cent of operating revenues, in the case of the Pennsylvania; $4,875,266, or 0.66 per cent, for the New York Central, including the Pittsburgh & Lake Erie; and $1,038,074, or 0.63 per cent, for the Norfolk & Western.

Composite figures on these payments are also shown for all Class I roads, the expenditures there being re-

lated to net railway operating income as well as to operating revenues. For Class I roads as a whole the 1947 payments totaled $55,908,304—0.64 per cent of revenues and 7.16 per cent of net railway operating income. The range in the ratios of the payments to operating revenues was from 0.94 per cent in the Pocahontas region to 0.44 per cent in the Northwestern region. The ratios of the payments to net railway operating income ranged from 18.53 per cent for the New England region to 4.63 per cent for the Northwestern region.

Passenger-Car Utilization

Data presented on "railway passenger car use" are interpreted by the bureau as indicating generally that the consistent decline in average occupancy since the peak war years is continuing. The passengers-per-car figures are the result of dividing passenger-miles by passenger carrying car-miles. They show 25 passengers per coach and 12.8 per sleeping or parlor car for the first two months of 1948, as compared with 26.9 and 14.2, respectively, for the first two months of 1947. The passengers-per-coach figure reached its high of 41 in 1941, which compared with a 1939 figure of 17; passengers per sleeper or parlor car were at their peak of 20.3 for both 1943 and 1944, while the 1939 figure was 9.3.

By relating the average number of passengers per car to seating capacities, the bureau sets up a table showing "average per cent utilization of seating capacity." The coach figures in that connection rose from 23.5 per cent in 1939 to a 1944 peak of 56.9, and fell off to 35 per cent for the first two months of this year. For sleeping and parlor cars, the 1939 figure was 35.5 per cent; the peak (78.4 per cent) was in 1943; and the figure for the first two months of this year was 48.3 per cent.

The bureau's usual analysis of the latest monthly results shows that the freight revenue for April was 3.3 per cent below March (after adjustment to a 30-day month basis), and 6.4 per cent above April, 1947. April passenger revenue, on the same basis, was off 3.5 per cent from the previous month and 1.3 per cent less than in April, 1947. The freight revenue index (based on the 1935-39 monthly average as 100) was 231.5 for April, compared with March's 239.2 and 217.4 for April, 1947. The April passenger-revenue index, at 205, compared with March's 212.4 and April, 1947's 207.7.

Net railway operating income for the 12 months ended with April was $740,762,000 and net income was $449,085,000. These compared, respectively, with $733,991,000 and $423,079,000 for the 12 months ended with April, 1947, and with $625,823,000 and $240,915,000 for the 12 months ended with April, 1946.

BALTIMORE & OHIO BUILDS NEW TERMINAL YARD AT CHICAGO (RIVERDALE-BLUE ISLAND)

Looking west over a part of the new terminal facilities, completed recently at a cost of approximately $3,600,000, which involved the construction of approximately 50 mi. of tracks in new eastbound and westbound receiving and classification yards with a combined capacity of 3,120 cars; a new engine terminal; a 120-car light repair yard; and a 183-car equipment-conditioning yard. The new layout, which is used by B. & O. road trains and for switching and interchange by the B. & O. C. T., is located approximately 14 mi. from the Glenn yard of the former Alton, previously used for these operations. The new engine terminal includes a 3-stall enginehouse; a 115-ft., three-point turntable; a 200-ton reinforced-concrete coaling station; a 300,000-gal. steel water tank with accompanying water-treating facilities; and a 3-track ash pit. Other facilities at the yard include a 200-ton automatic track scale; a 140-ft. by 44-ft. two-story brick office building; a similar building housing recreation and rest facilities for train crews; a flood-lighting system encompassing both the yards and engine terminal; and a comprehensive communication system involving both talk-back speakers and paging equipment. The illustration shows the westbound classification yard at the left and the westbound receiving yard at the right

Gas-electric fork trucks, pallets and steel strapping keep down handling expenses at Paducah. A pallet of grease is on its way to storage after being strapped

UNIT LOADS AND FORK TRUCKS SAVE TIME

Illinois Central Stores Department finds mechanized equipment and unit-load principle cuts handling time by 96 per cent on some items

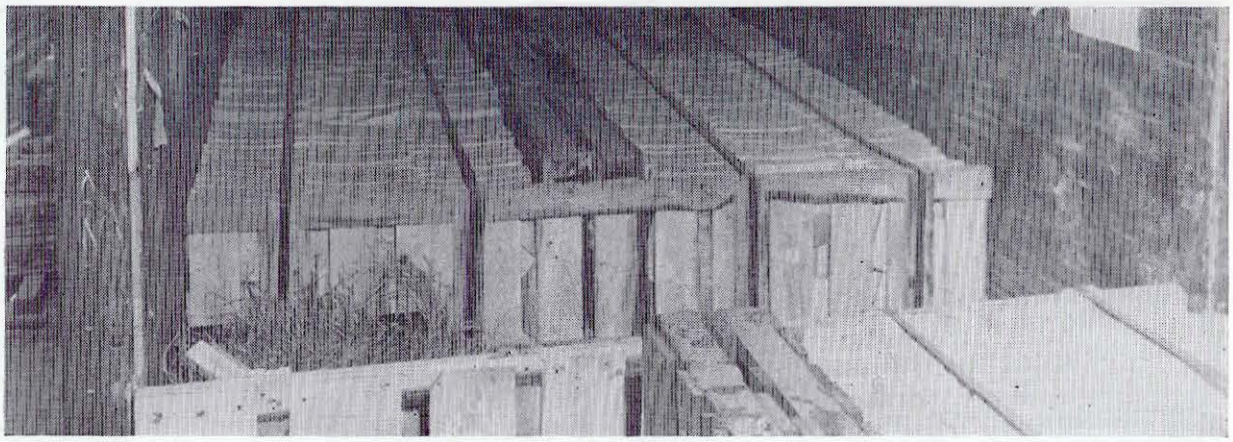
Use of the unit load principle with the gas-electric (Ready-Power Unit) fork trucks has enabled the Illinois Central's forces at the Paducah (Ky.) general storehouse to cut the time required in handling some supply items by as much as 96 per cent. Average savings of 85.19 per cent, in time, from the old hand method of handling have been accomplished for four items surveyed in this article. These savings result from cutting the manual movement of supplies. The work is in charge of B. T. Adams, general storekeeper, and W. S. Morehead and G. D. Tombs, manager and assistant manager of stores, respectively.

With these savings in mind the I. C. asks its suppliers to ship unit loads of materials to Paducah. If the supplier does not comply the railroad still builds unit loads, for great savings in time are still possible, not only at Paducah but at district storehouses. Particularly significant is the use the I. C. is making of the unit load

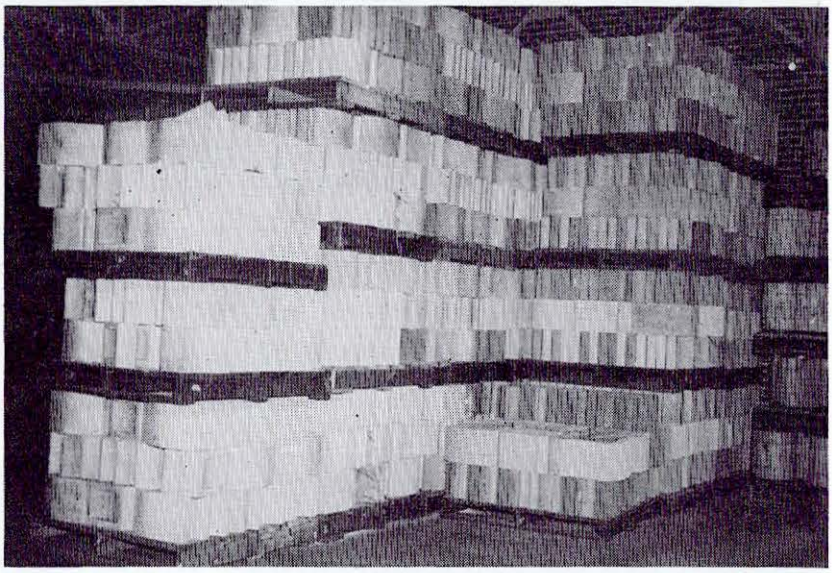
Left—Storage of insulated joints as it used to be done. Evidence of manual handling can be seen in the method of stacking

Facing page (left)—Unit load now used in handling of 22 insulated joints. Scrap lumber and steel strapping are used to stabilize and keep load from shifting

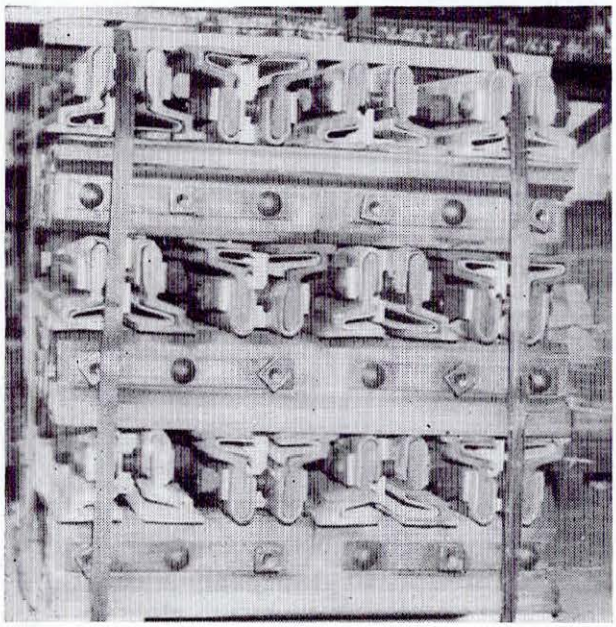
Facing page (right)—Rivets stacked in pallet-type racks. If rack is empty or mainly so it can be carried to car for unloading. If not empty a fork truck can raise regular double-faced pallet, allowing men to shove kegs into rack

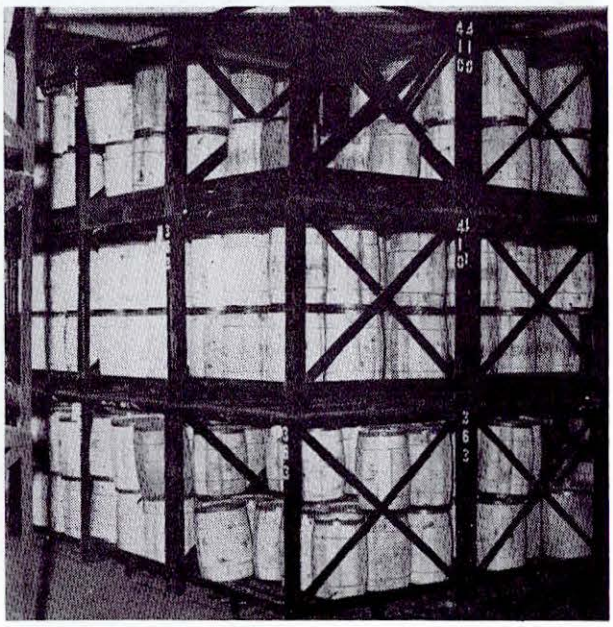


Above—A carload of arch brick, loaded on pallets, upon arrival at Paducah. Several pallet loads have been strapped together to form a floating load



Right — Storage of palletized arch brick. As in the car (above), the individual pallet loads are not strapped





COURT DECISION THREATENS END TO ALL LONG-HAUL TRAFFIC

By LEON LEIGHTON

In a two-part article appearing in *Railway Age* of December 20 and 27, 1947, the writer pointed out the calamitous results which would follow if the Supreme Court should sustain the position of the Federal Trade Commission on the appeal then pending in the "Cement Case." It was indicated that enforcement of the commission's policy of outlawing "freight absorption," and of requiring producers to realize uniform "mill net" prices from all customers, would as a practical matter exclude each producer from all markets in which any competitor enjoyed a freight advantage. This would effectively eliminate all systems of nationwide distribution; industries would be destroyed; communities and whole regions would be devastated.

Railroads could not long survive such a blow to the industries and territories upon whose well-being they depend. It was estimated that there would be an immediate reduction of at least 30 per cent in the revenues received by the railroads from manufactures and miscellaneous carloads and from less-carload freight. Since the 1946 revenues derived from these two categories aggregated $3,075 million, this reduction would amount to over $900 million a year—and this would only be a beginning of the losses. Nor does this total adequately portray the problem of individual railroads—those which depend largely on long hauls would suffer a higher percentage of loss.

Clarification Necessary

The overall decline in revenue would be even greater than indicated by statistical analysis. With most traffic confined to short hauls, the railroads would be competing in the field where truck transportation is strongest. And many industries would switch to their own trucks for the longer hauls, since those freight costs would not be readily ascertainable by the Federal Trade Commission, and any freight absorption desired could be buried in the composite cost picture.

On April 26, the Supreme Court upheld the commission's contention in the "Cement Case." The forebodings expressed by the writer in the previous article have now become stark realities. The daily business newspapers and weekly news magazines have raised the question of the necessity of asking Congress to clarify the law, unless industries are prepared to decentralize production and relocate all plants in close proximity to their important markets. Congress will be asked by the industries and regions affected to enact legislation making it crystal clear that a manufacturer may systematically meet the price of any competitor in any market provided only that this be done without collusion or agreement of any kind. This last proviso will prevent using "freight absorption" as a means of monopolistic price control, which has been done by some industries in the past.

Our present system of free competition and nationwide distribution is based upon giving each manufacturer this freedom to vary his "mill net" according to the conditions prevailing in any market which he wishes to serve, by absorbing freight to whatever extent is necessary to meet competition. The livelihood of the railroads also depends upon the preservation of this system. Unlesss they are resigned to a quick and certain death the railroads should seriously consider supporting clarifying legislation.

Basis of American Industrial System

In doing this, the railroads would serve not just their own interests alone but the whole cause of free enterprise. Our country has grown great and prosperous as the result of the system of competitive nationwide distribution, which has made possible our technique of mass production with the concentration of manufacture at points necessarily distant from some of the markets served.

Of the $4,040 million of automobiles produced in 1939, 56 percent were manufactured in Michigan alone.* As was said by Senator Vandenberg in the debates on the Robinson-Patman bill†: "The automobile industry is necessarily confined to a comparatively few producing units. If it were not thus confined, the American public would not have the advantage it enjoys today of an exceptionally high value at an exceptionally low price, and the country would not be enjoying the reflected benefit of the induced prosperity that has come from that precise formula."

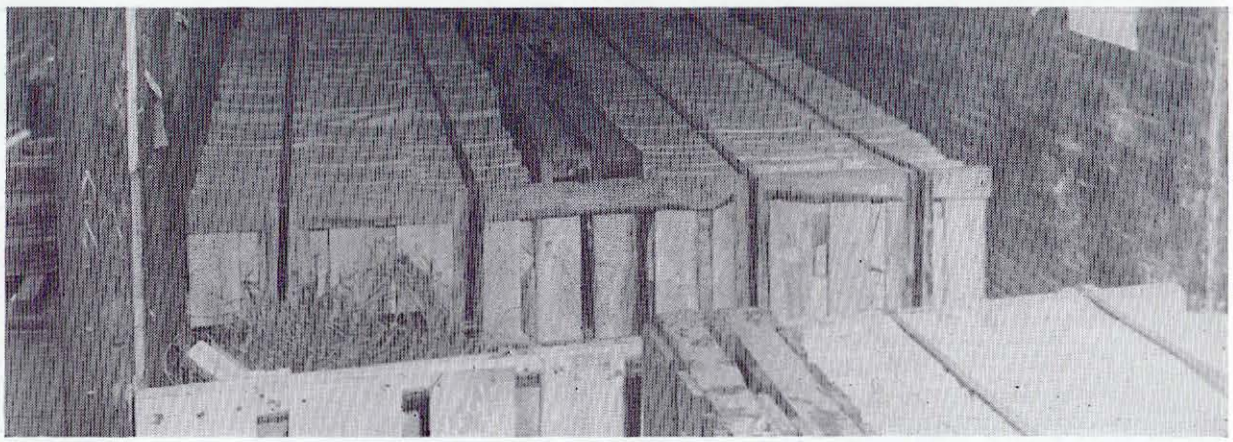
The same considerations apply to numerous other categories of both producers' and consumers goods. Of the $2,720 million of products of steel works and rolling mills, 56 percent were manufactured in Pennsylvania and Ohio. Of the $2,461 million of petroleum products, 45 percent were refined in Texas and California. Of the $1,038 million of cigarettes, 83 percent were manufactured in North Carolina and Virginia.

Of the $1,015 million of women's and misses' outer clothing, 67 percent were manufactured in New York alone. Of the $869 million of cotton broad-woven fabrics, 69 percent were produced in the Carolinas, Georgia and Alabama. Of the $685 million of woolens and worsteds, 46 percent were manufactured in Massachusetts and Rhode Island.

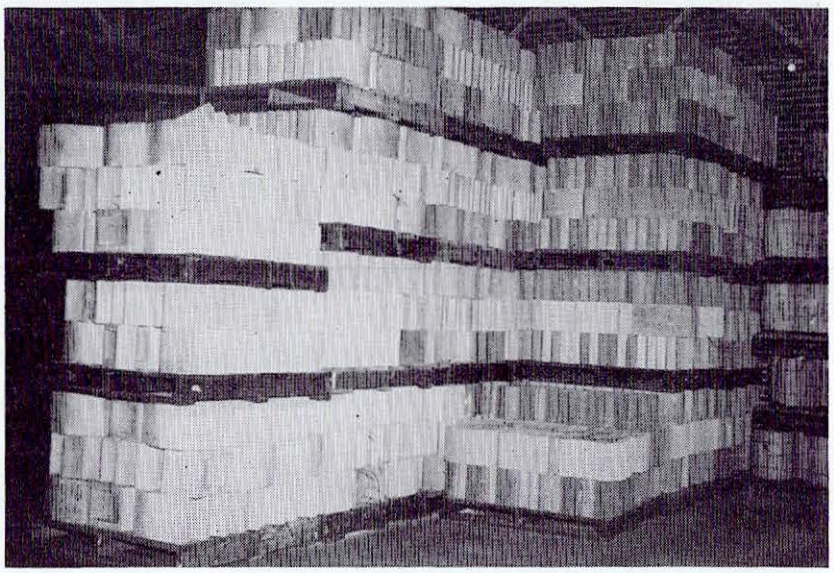
Of the $763 million of fresh meats, 51 percent were produced in Illinois, Minnesota, Iowa, Missouri, Nebraska and Kansas. Of the $693 million of products

*All figures are taken from the 1939 Census of Manufactures
†80 Cong. Rec. 6428

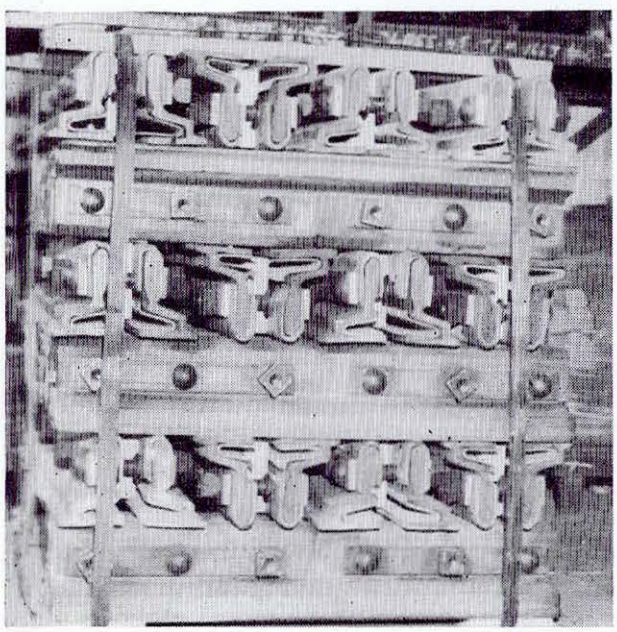
(Continued on page 125)

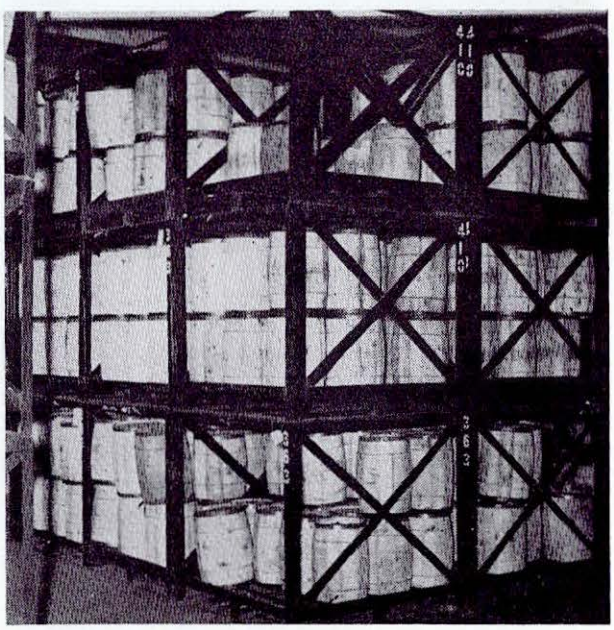


Above—A carload of arch brick, loaded on pallets, upon arrival at Paducah. Several pallet loads have been strapped together to form a floating load



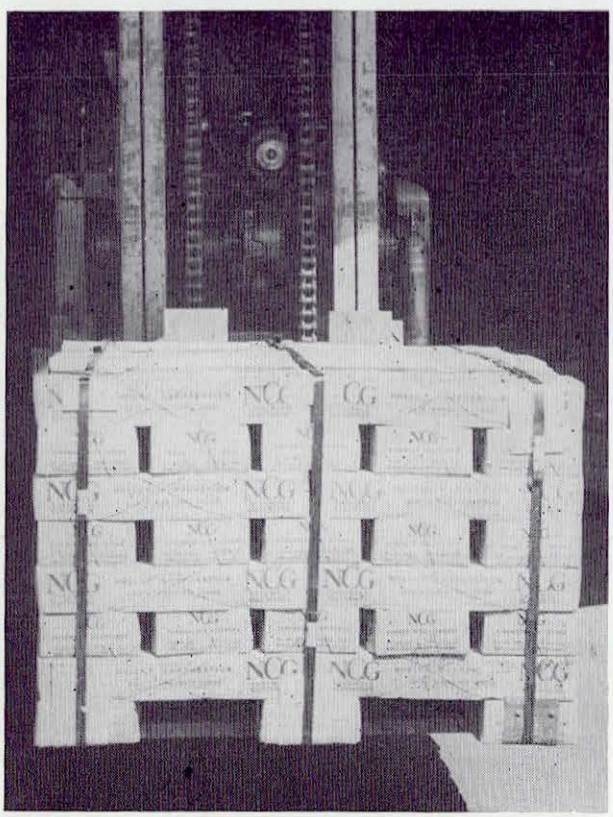
Right — Storage of palletized arch brick. As in the car (above), the individual pallet loads are not strapped

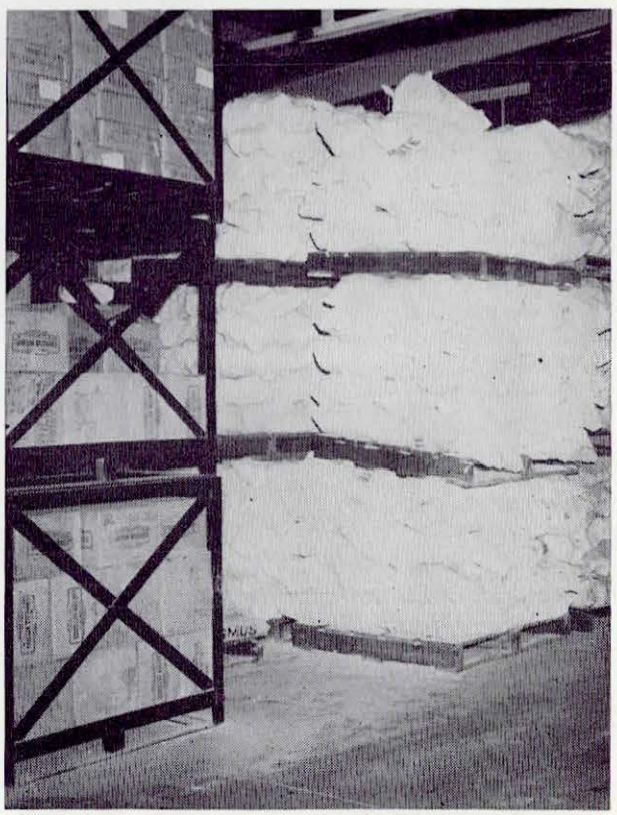




Welding rod as palletized at Paducah and stored. At present some welding rod is coming in the type unit load shown below (left). Pallet-type racks in background work well for storage of brooms

Left—Unit load of welding rod upon arrival at Paducah. Material used was some steel strapping and scrap lumber. Entry for fork truck can be plainly seen. Absence of load upthrust at any point is noticeable. Load can be placed in rack as is. Right—Soda ash briquets stored on pallets and lantern batteries stored in racks





without pallet. The pallet is found to be not always necessary and sometimes even undesirable.

Palletization, as one form of the unit load, has been found best in moving some types of supplies. But pallets cost money, whether they are homemade or bought. Fully aware of this, the I. C. has experimented with a form of the unit load which requires only a little scrap lumber and some steel strapping.

One of the most interesting of these experiments has been with insulated joints, always a heavy, awkward, injury-producing article for manual handling. Years ago these joints were placed on skids when unloaded from the car, transported to the storage area, unloaded by hand and stacked in piles. (See Table I, "a. Old method.") Next, palletization of the joints was tried and savings in handling were the result. (See Table I, "b.") Still not satisfied, Paducah stores officers observed that one further manual handling could be eliminated if the vendor shipped to the railroad in unit loads, such as the accompanying illustration shows. Item "c" in Table I indicates that the savings in time in handling this unit load mechanically, with no manual labor involved, amounted to almost 96 per cent as compared to the "old method." Even when Paducah stores forces build this load the improvement over the manual methods of years ago amounts to .72 man-hours or 22.9 per cent, as shown in item "d" of Table I.

Paducah used to receive all fire and arch brick loose in the car. When these were unloaded at Paducah they were placed on pallets for storage and movement to other locations. Today some of these supplies are received on pallets, with time saving as shown in Tables II and III. (Illustrations show a carload of palletized arch brick upon arrival at Paducah, and storage of the brick inside the storehouse.) Reported savings of 92 and 96 per cent in handling time represent substantial economies.

TABLE I
Handling of 100 115-lb. Insulated Joints†

	Man-hours required	Savings over old method (man-hours)	Per cent savings in time
a. Old method—2 manual handlings	3.15		
b. Palletizing at Paducah	1.65	1.5	47.3
c. Unit load made* by vendor	.13	3.02	95.88
d. Unit load made* by Paducah	2.43	.72	22.9
Total Handling Time, Paducah and One District Storehouse			
e. Old method—6 manual handlings	8.45		
f. Palletizing	2.02	6.43	77.1
g. Unit load by vendor	.26	8.19	96.9
h. Unit load by Paducah	2.56	5.89	69.8

† Round trip covered 672 ft.
* 22 joints to a unit load. To handle 110 joints (5 unit loads) would require, at this rate, .167 man-hours if load made by vendor and 3.04 man-hours if made by Paducah.

TABLE II
Handling of 10,000 Fire Brick

	Man-hours required	Savings over old method (man-hours)	Per cent savings in time
a. Old method—Palletized at Paducah	30		
b. Palletized by vendor	1.3	28.7	95.7

TABLE III
Handling of 2,453 Arch Brick

	Man-hours required	Savings over old method (man-hours)	Per cent savings in time
a. Old method—Palletized at Paducah	26		
b. Palletized by vendor	2	24	92.3

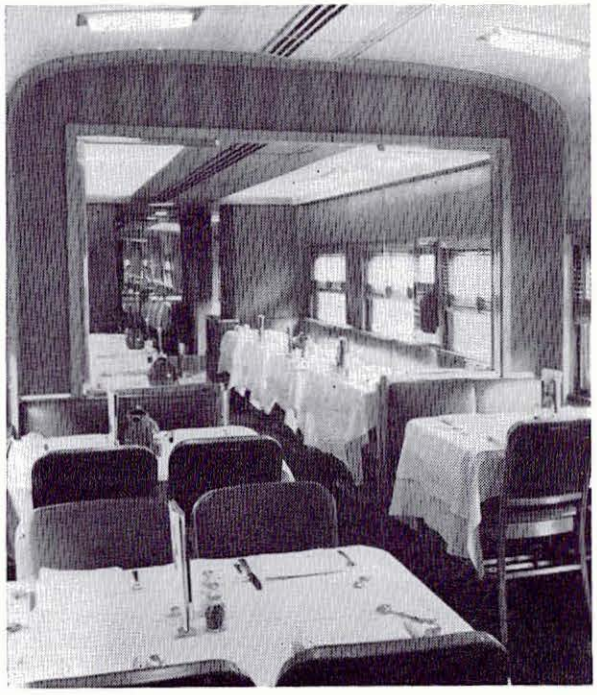
Rivets, which used to come loose in the car, now are sometimes received on pallets. Formerly all were palletized at Paducah. When such shipments are received on pallets time savings are tremendous. In the instance used in Table IV for comparative purposes, even greater savings would have been achieved had the kegs been strapped together. As it was, they were not, and many kegs had slid from position on the pallet while the shipment was en route. Consequently, time was required for laborers to replace the kegs on pallets for mechanical movement into the storehouse.

That mechanical handling of the unit load offers great possibilities in time savings is evident from these example of the Illinois Central's experiences. The savings are greatest when the unit load is prepared by the vendor. Especially where the pallet is not required, as in the cases of welding rods, insulated joints, and other items easily handleable, there is a fertile field for exploitation by both supplier and railroad.

TABLE IV
Handling of 205 Kegs of Rivets*

	Man-hours required	Savings over old method (man-hours)	Per cent savings in time
a. Old method—Palletized at Paducah	5.33		
b. Palletized by vendor	2.30	3.10	56.9

* Round trip covered 434 ft.



New type all-stainless steel diner built by The Budd Company for the New York Central

COURT DECISION THREATENS END TO ALL LONG-HAUL TRAFFIC

By LEON LEIGHTON

In a two-part article appearing in *Railway Age* of December 20 and 27, 1947, the writer pointed out the calamitous results which would follow if the Supreme Court should sustain the position of the Federal Trade Commission on the appeal then pending in the "Cement Case." It was indicated that enforcement of the commission's policy of outlawing "freight absorption," and of requiring producers to realize uniform "mill net" prices from all customers, would as a practical matter exclude each producer from all markets in which any competitor enjoyed a freight advantage. This would effectively eliminate all systems of nationwide distribution; industries would be destroyed; communities and whole regions would be devastated.

Railroads could not long survive such a blow to the industries and territories upon whose well-being they depend. It was estimated that there would be an immediate reduction of at least 30 per cent in the revenues received by the railroads from manufactures and miscellaneous carloads and from less-carload freight. Since the 1946 revenues derived from these two categories aggregated $3,075 million, this reduction would amount to over $900 million a year—and this would only be a beginning of the losses. Nor does this total adequately portray the problem of individual railroads—those which depend largely on long hauls would suffer a higher percentage of loss.

Clarification Necessary

The overall decline in revenue would be even greater than indicated by statistical analysis. With most traffic confined to short hauls, the railroads would be competing in the field where truck transportation is strongest. And many industries would switch to their own trucks for the longer hauls, since those freight costs would not be readily ascertainable by the Federal Trade Commission, and any freight absorption desired could be buried in the composite cost picture.

On April 26, the Supreme Court upheld the commission's contention in the "Cement Case." The forebodings expressed by the writer in the previous article have now become stark realities. The daily business newspapers and weekly news magazines have raised the question of the necessity of asking Congress to clarify the law, unless industries are prepared to decentralize production and relocate all plants in close proximity to their important markets. Congress will be asked by the industries and regions affected to enact legislation making it crystal clear that a manufacturer may systematically meet the price of any competitor in any market provided only that this be done without collusion or agreement of any kind. This last proviso will prevent using "freight absorption" as a means of monopolistic price control, which has been done by some industries in the past.

Our present system of free competition and nationwide distribution is based upon giving each manufacturer this freedom to vary his "mill net" according to the conditions prevailing in any market which he wishes to serve, by absorbing freight to whatever extent is necessary to meet competition. The livelihood of the railroads also depends upon the preservation of this system. Unlesss they are resigned to a quick and certain death the railroads should seriously consider supporting clarifying legislation.

Basis of American Industrial System

In doing this, the railroads would serve not just their own interests alone but the whole cause of free enterprise. Our country has grown great and prosperous as the result of the system of competitive nationwide distribution, which has made possible our technique of mass production with the concentration of manufacture at points necessarily distant from some of the markets served.

Of the $4,040 million of automobiles produced in 1939, 56 percent were manufactured in Michigan alone.* As was said by Senator Vandenberg in the debates on the Robinson-Patman bill†: "The automobile industry is necessarily confined to a comparatively few producing units. If it were not thus confined, the American public would not have the advantage it enjoys today of an exceptionally high value at an exceptionally low price, and the country would not be enjoying the reflected benefit of the induced prosperity that has come from that precise formula."

The same considerations apply to numerous other categories of both producers' and consumers goods. Of the $2,720 million of products of steel works and rolling mills, 56 percent were manufactured in Pennsylvania and Ohio. Of the $2,461 million of petroleum products, 45 percent were refined in Texas and California. Of the $1,038 million of cigarettes, 83 percent were manufactured in North Carolina and Virginia.

Of the $1,015 million of women's and misses' outer clothing, 67 percent were manufactured in New York alone. Of the $869 million of cotton broad-woven fabrics, 69 percent were produced in the Carolinas, Georgia and Alabama. Of the $685 million of woolens and worsteds, 46 percent were manufactured in Massachusetts and Rhode Island.

Of the $763 million of fresh meats, 51 percent were produced in Illinois, Minnesota, Iowa, Missouri, Nebraska and Kansas. Of the $693 million of products

*All figures are taken from the 1939 Census of Manufactures
†80 Cong. Rec. 6428

(Continued on page 125)

Photo courtesy of New Haven Railroad

Yard clerk arranges the waybills as he plays back a record

CAR NUMBERS "GRABBED" BY VOICE-RECORDER

The New York, New Haven & Hartford, with highly effective results, has developed and installed at its Cedar Hill yard in New Haven, Conn., a system for the telephone transmission of car numbers and initials from a "grabber" at the entrance of the departure yard to a voice-recording machine in the general yard office. Previously, a clerk, known as a "number grabber," stood at the yard entrance with a pad of paper forms on which he wrote in pencil the information as the cars passed. These lists were transmitted to the yard office by messenger or by pneumatic tube. In the new system the "grabber'" has a telephone set in his hand. As each drag of cars approaches, he pushes a button on the handset and speaks into the transmitter to give the initial and number of each car. This transmitter is connected by a circuit in cable to a desk-type voice-recording machine, known as a Soundscriber, located in the yard office two miles away. Thus a voice record is made of the cars in a passing train or drag of cars being moved to the departure yard to be dispatched.

The Soundscriber in the yard office uses plastic disk records 7 in. in diameter, having a capacity on each side for 15 min. recording time. This machine does not run continuously—it starts when the grabber presses his push-to-talk button and stops when he releases it. Generally, one side of each disk is used to record each train, but it can be used for two or more trains, depending on their length. The machine has two turntables with a disk on each. When the disk on the first turntable is filled, operation of the second turntable is automatically started, the recording procedure thus being continued without interruption.

A separate Soundscriber transcriber is provided so that the clerk in the general yard office can "play back" each record to reproduce the voice recording in his earphones. As applying to a train being made up for departure, he arranges the waybills and cards used in the teletype system for transmitting the outbound consist in train-check order in accordance with the recording. The transcriber has a foot-pedal control which permits the clerk to stop the "play back" or to reset the transcriber to repeat either a portion or all of the disk.

One of the principal advantages of the new voice-recording system is that the yard clerk's check is thus available at terminal headquarters as soon as the last car of the drag has passed the "grabber." This eliminates the loss of time formerly required to send the check by tube or messenger to terminal headquarters. According to the New Haven, this minimizes one of the sources of delay to outbound trains.

Another advantage of the new practice is increased accuracy. With the previous handwritten method, time was available to write down only the car number, not the initial, and legibility of the writing, particularly during rainy or cold weather, was impaired. With the voice-recording system, time is available to give the initial as well as the number, and, furthermore, it is now practicable to thus make a record of main-line trains moving at yard speed via the loop track directly to the departure yard. These checks are thus available in the office before the train arrives in the departure yard.

The operation of this voice-recorder number-grabbing system was planned by J. L. Barngrove, Jr., assistant to general manager, and W. A. Moore, general superintendent of electric transmission and communication. The voice-recording and play-back machines were furnished by the Soundscriber Corporation, New Haven, and were installed by New Haven forces under the direction of G. N. Loomis, communication engineer.

independent offices appropriation bill for fiscal 1949, which carried $10,894,317 for the I.C.C. and $435,588,854 for the Public Roads Administration; and legislation which authorizes vessels of Canadian registry to transport iron ore between United States ports on the Great Lakes during 1948.

More Money for Transport Inquiry

The House adopted a resolution granting its committee on interstate and foreign commerce an additional $10,000 to continue the "national transportation inquiry" which the committee has had under way for some time. The Senate confirmed President Truman's reappointment of Interstate Commerce Commissioner Walter M. W. Splawn and the appointment of John Thad Scott, Jr., to membership on the National Mediation Board. It did not have time to act on the reappointment of Frank C. Squire as railroad management's representative on the Railroad Retirement Board, since President Truman did not submit it until June 18. Mr. Squire's present term expires August 29, but the President can give him a recess appointment if the Senate does not meet again before that time.

The adjournment resolution provides that both houses shall "stand adjourned" until December 31, but it also provides that they may be reassembled before that time by joint call of the president pro tempore of the Senate, the speaker of the House, and the majority (Republican) leaders of both branches. Meanwhile, of course, President Truman has his Constitutional authority to call a special session at any time. Unless one or the other of these actions is taken to bring Congress back before the end of the year, all legislation pending at various stages short of enactment will die. This is because it will be a new Congress that assembles in January, 1949.

Among such pending proposals are bills to give the I.C.C. authority to prescribe safety and sanitation standards for railroad express and baggage cars in which express messengers or baggagemen are required to ride, and authority over train operating rules, train communications systems, and track and roadbed standards; and to amend the Interstate Commerce Act in various respects as recommended by the commission, including the addition of provisions which would extend to carrier associations the commission's authority to require reports and inspect records. Also, the bill to make uniform as to all types of carriers the Interstate Commerce Act's provisions fixing the period within which actions may be brought for the adjustment of overcharges or undercharges; and that which would require that all proposed waterway projects be submitted to the commission for a report as to the "economic justification" and "public convenience and necessity" for the navigation and transportation features.

Still other unfinished business is the proposal to limit the venue in damage suits against the railroads; the proposed amendment to section 77 of the Bankruptcy Act which would have the effect of prohibiting the inclusion in railroad reorganization plans of provisions affecting the existing authority of any state or state regulatory agency relating to service, operations or rates; and bills to "penalize black marketing of transportation tickets." Toward the end of the session several bills and resolutions were introduced for the purpose of authorizing and requesting the President to negotiate with Canada an agreement for the construction of a railroad connecting the Alaska system with Canadian lines now terminating at Prince George, B. C.

Hearings of the session, other than those on specific bills, included those held by the House committee on interstate and foreign commerce in connection with its "national transportation inquiry." The latest series of these sessions were those held this month on that phase of the inquiry which relates to the readiness of the carriers to handle any defense load. The presentations included that of Robert R. Young, chairman of the Chesapeake & Ohio and of the Federation for Railway Progress; and the reply of William T. Faricy, president of the Association of American Railroads (see *Railway* Age of June 12, page 59, and June 19, page 33).

One of the veteran members of this House

MONOPOLY HAS OBLIGATIONS AS WELL AS PRIVILEGES

"The crises precipitated by the railway and coal disputes have cast new doubt on the adequacy of existing federal labor legislation. Changing conditions have brought about a situation in which some work stoppages are not primarily weapons against the contending parties in disputes but against the general public. This is preeminently true of disputes in the railroad and public utility industries, in which both labor and management might be able to withstand the effects of a suspension for weeks or months, but even a brief interruption of service would have the gravest effects on the general life of the community or nation.

Railroads are public utilities endowed with monopoly privileges, legally obliged to maintain service, and charging rates fixed by governmental authority. It would be perfectly logical and reasonable to require persons accepting railway employment to do so with the clear understanding that they, like their employers, would be barred by the nature of their services from some of the privileges, as well as some of the disadvantages, that apply to industry in general.

Our existing laws do not take sufficient account of present-day realities . . . The most glaring inadequacy is found in the Railway Labor Act. That act, passed twenty-two years ago, set up a rather elaborate procedure for the settlement of disputes. . . . It was hoped that these prescribed steps, with their enforced delays, combined with the force of public opinion, would suffice to prevent disputes from resulting in suspension of railway operations. Hence, no provision was made to prohibit such a suspension or to terminate one should it occur. The carriers are of course required to maintain operations, but there is no similar compulsion on the unions. . . . The very least that should be done, and done promptly, is to make railway stoppages subject to restraint comparable to that provided for other industry by the Taft-Hartley Act. If such action should prove sufficient, it would be a relief to dispense with more thoroughgoing and perhaps more logical measures.

—*The Guaranty Survey of the Guaranty Trust Company*

Photo courtesy of New Haven Railroad

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CONGRESS WAS BUSY IN SESSION'S CLOSING DAYS

Much legislation enacted including Bulwinkle-Reed Act, amendments to Railroad Retirement and Railroad Unemployment Insurance Acts, and steel-allocation provisions of selective service act

Passage over President Truman's veto of the Bulwinkle-Reed Act to stay the operation of the anti-trust laws with respect to carrier agreements and other joint actions relating to rates and charges was the principal legislation of railroad interest enacted during the second session of the Eightieth Congress, which adjourned on June 20. The session also saw the shelving "for further study" of the proposed St. Lawrence seaway and power project; and it brought enactment of the so-called Mahaffie Act, which sets up procedures for the voluntary readjustment of railroad financial structures along lines of the former Chandler and McLaughlin acts, and of the Wolverton Act embodying the labor-management compromise agreement on amendments to the Railroad Retirement and Railroad Unemployment Insurance acts.

Legislation passed during the session's closing hours to reestablish selective service includes provisions authorizing the President to require the steel industry to allocate steel to companies holding defense orders. These provisions are in section 18 of the bill, S.2655, as finally approved by both branches of Congress. That section first authorizes the President, through the head of any government agency, to place orders for defense materials required by the armed services or Atomic Energy Commission with "any plant, mine, or other facility" capable of supplying the materials. The supplier is then required to give priority to the defense order.

If he fails to do so, or to conform to other prescribed procedures, the President is authorized to seize the plant involved.

Steel-Allocation Authority

Other provisions of the section authorized the President, through the Secretary of Defense, to require steel producers to make available to firms having the defense orders "such percentages of the steel production of such producers, in equal proportion, deemed necessary for expeditious execution of orders for such products or materials." "Compliance with such requirements," the section continues, "shall be obligatory on all such producers of steel and such requirements shall take precedence over all orders and contracts theretofore placed with such producers."

Here again, the President would have seizure power for taking over the plants of producers which failed to comply with allocation directives. Also, there are penalties for refusal to comply—imprisonment for not more than three years and a fine of not exceeding $50,000. The President would be required to report to Congress on his exercise of the allocation authority for any six-months period during which the defense orders called for the allocation to them of more than 10 per cent of the country's steel-producing capacity.

The Wolverton Act mentioned above increases Retirement Act benefits by 20 per cent and restores the lump-sum death-benefit provisions which were eliminated by the Crosser Act of 1946; it amends the Unemployment Insurance Act by placing the taxes collected thereunder on a sliding-scale basis which reduces the levy (paid entirely by the railroads) from 3 per cent to ½ per cent of taxable payroll, the cut applying retroactively to January 1. After allowance for income taxes, it has been estimated that this tax will save the Class I roads about $65 million a year. Enactment of this legislation was completed when President Truman signed it on June 23.

Other late enactments signed by the President include H.R.6078, which amends the Interstate Commerce Act's water-carrier regulatory provisions to authorize the Interstate Commerce Commission to exempt from such provisions the transportation services of ships engaged in foreign-cruise operations originating and terminating in this country. The President has also signed the labor-federal security appropriation bill for the fiscal year ending June 30, 1949, which carries $642,416,000 for the Railroad Retirement Board and $962,550 for the National Mediation Board and National Railroad Adjustment Board. The former figure includes $637,986,000 appropriated to the Railroad Retirement Account in the Treasury, and $4,530,000 for R.R.B. administrative expenses under the Retirement Act.

Waterway and Roads Bills

Legislation passed and sent to the President in the closing days of the session included additional appropriation bills and other measures as follows:

H.R.5888, the federal-aid highway bill, which authorizes the appropriation of $900,000,000 to continue the so-called postwar program for two additional fiscal years (those ending June 30, 1950, and June 30, 1951) at an annual rate of $450,000,000. Authorizations under which the Public Roads Administration has been working for the past four years run through the next fiscal year ending June 30, 1949. They were set up on a $500,000,000 annual basis (a total of $1,500 million) for the three fiscal years 1946, 1947 and 1948 and then extended for fiscal 1949.

H.R.6419, the rivers and harbors and flood-control

bill, which authorizes 39 rivers and harbors projects on which the estimated cost of construction would be $30,444,000 while the estimated annual maintenance cost would be $790,100. This program, proposed in the Senate version of the bill, became the final program when it was embodied in the report of the Senate-House conference committee which reconciled the differing versions. The bill carries no appropriations for the projects it authorizes; but it adds them to the backlog of projects to which funds may be allocated from those carried in appropriations bills for rivers and harbors and flood-control work of the Army's Corps of Engineers. As noted in the *Railway Age* of June 12, page 85, the House version proposed authorizations for rivers and harbors projects on which the cost of construction was estimated at $20,887,900. Oswego harbor, N. Y., with an estimated construction cost of $7,838,000, was the largest of the seven projects added by the Senate and included in the final version. As to flood control, the final version authorizes projects estimated to cost $57,175,000 as compared with $22,875,000 in the House version and $60,175,000 in the Senate version.

Air Parcel-Post Service

S.2281, which provides for an air parcel-post service. The bill would establish eight rate zones for air-parcel-post matter which would consist of "mailable matter exceeding 8 ounces in weight, but not weighing more than 70 lb. nor measuring more than 100 in. in length and girth combined." The rates range from 55 cents for the first pound or fraction thereof and 4 cents for each additional pound or fraction thereof, delivered within the first or second zones, to 80 cents and 65 cents, respectively, for delivery within the eighth zone. There are provisions authorizing the postmaster general, during a period of two years, to adjust the zone boundaries and rates "in order to promote the service"; and other provisions authorizing him to add a surcharge on matter "of light weight in relation to size."

H.R.6916, which includes provisions increasing various postal rates while it raises the salaries of federal employees. The revised postal-rate scale will increase the charges for air-mail from five cents per ounce to six cents per ounce, and it also involves upward adjustments of rates on third-class mail, parcel post, and such services as special delivery, registered mail, insurance, and collection-on-delivery.

S.1260, which provides for a three-member commission to pass upon claims against the government by midwestern motor carriers taken over during a wartime labor dispute and operated by the Office of Defense Transportation.

Members of the commission would be appointed by the President "with the advice and consent of the Senate."

H.R.6318, which amends the Standard Time Act as it relates to the boundary in Idaho between the Mountain and Pacific time zones. The report on the bill from the House committee on interstate and foreign commerce said that its purpose was "to permit the Union Pacific to use Pocatello, Idaho, as the point at which, for operating purposes, it changes from Mountain time to Pacific time, and to conduct its operations west of Pocatello on Pacific time."

S.2192, which amends the Interstate Commerce Act's section 1 (7) to add railroad "time inspectors" to the list of those to whom railroads may give passes.

S.J.Res.177, which provides for participation by the United States government in the Pan-American Railway Congress. This resolution also authorizes the appropriation of $5,000 annually for payment of the government's proportionate share of the Congress' expenses, and "such additional sums" as may be needed in connection with participation by government representatives in the Congress' activities.

Appropriation Bills

The additional fiscal 1949 appropriation bills which went to the President during the session's closing days included the following:

H.R.5524, making appropriations for the civil functions of the Department of the Army. The final version carries $166,989,100 for rivers and harbors work, as compared with $151,831,300 proposed by the House and $195,084,400 proposed by the Senate. Among the items included in the latter but eliminated from the final version were $1,500,000 for work on the proposed Tennessee-Tombigbee waterway, and $2,200,000 for the Overton-Red River waterway. The final version also carried $405,741,100 for flood-control work, as compared with $386,532,000 proposed by the House and $444,656,800 proposed by the Senate.

H.R.6829, the supplemental independent offices appropriation bill, which carries $340,000 for O.D.T. operations from July 1 until February 28, 1949. Meanwhile Congress failed to act on President Truman's request for additional funds to keep O.D.T. in business until June 30, 1949. The request was made after the passage early this month of legislation (H.R.6659) extending until the latter date the Presidential authority (which has been delegated to O.D.T.) to allocate railroad equipment and facilities.

H.R.6481, the government corporations appropriation bill, which carries $2,000,000 for purchase by the Department of Commerce of additional stock of the government-owned Inland Waterways Corporation, operator of the Federal Barge Lines. The House committee on appropriations explained this appropriation as one which "should enable the corporation to obtain enough new capital equipment to demonstrate efficient operation and to attract private capital to this enterprise." Meanwhile, Congress took no final action at the session on pending proposals to make less restrictive the conditions under which transportation facilities of I.W.C. may be sold to private interests.

H.R.5607, carrying funds for the Department of Commerce, including $100,370,000 for the Civil Aeronautics Administration. That amount includes funds for the operation of the so-called federal-aid airway system, for the establishment of additional air-navigation facilities, and for the federal-aid airport program.

Earlier proceedings of the session, as reported in previous issues of *Railway Age*, included enactment of legislation to extend the life of the Reconstruction Finance Corporation until June 30, 1956; the regular

independent offices appropriation bill for fiscal 1949, which carried $10,894,317 for the I.C.C. and $435,588,854 for the Public Roads Administration; and legislation which authorizes vessels of Canadian registry to transport iron ore between United States ports on the Great Lakes during 1948.

More Money for Transport Inquiry

The House adopted a resolution granting its committee on interstate and foreign commerce an additional $10,000 to continue the "national transportation inquiry" which the committee has had under way for some time. The Senate confirmed President Truman's reappointment of Interstate Commerce Commissioner Walter M. W. Splawn and the appointment of John Thad Scott, Jr., to membership on the National Mediation Board. It did not have time to act on the reappointment of Frank C. Squire as railroad management's representative on the Railroad Retirement Board, since President Truman did not submit it until June 18. Mr. Squire's present term expires August 29, but the President can give him a recess appointment if the Senate does not meet again before that time.

The adjournment resolution provides that both houses shall "stand adjourned" until December 31, but it also provides that they may be reassembled before that time by joint call of the president pro tempore of the Senate, the speaker of the House, and the majority (Republican) leaders of both branches. Meanwhile, of course, President Truman has his Constitutional authority to call a special session at any time. Unless one or the other of these actions is taken to bring Congress back before the end of the year, all legislation pending at various stages short of enactment will die. This is because it will be a new Congress that assembles in January, 1949.

Among such pending proposals are bills to give the I.C.C. authority to prescribe safety and sanitation standards for railroad express and baggage cars in which express messengers or baggagemen are required to ride, and authority over train operating rules, train communications systems, and track and roadbed standards; and to amend the Interstate Commerce Act in various respects as recommended by the commission, including the addition of provisions which would extend to carrier associations the commission's authority to require reports and inspect records. Also, the bill to make uniform as to all types of carriers the Interstate Commerce Act's provisions fixing the period within which actions may be brought for the adjustment of overcharges or undercharges; and that which would require that all proposed waterway projects be submitted to the commission for a report as to the "economic justification" and "public convenience and necessity" for the navigation and transportation features.

Still other unfinished business is the proposal to limit the venue in damage suits against the railroads; the proposed amendment to section 77 of the Bankruptcy Act which would have the effect of prohibiting the inclusion in railroad reorganization plans of provisions affecting the existing authority of any state or state regulatory agency relating to service, operations or rates; and bills to "penalize black marketing of transportation tickets." Toward the end of the session several bills and resolutions were introduced for the purpose of authorizing and requesting the President to negotiate with Canada an agreement for the construction of a railroad connecting the Alaska system with Canadian lines now terminating at Prince George, B. C.

Hearings of the session, other than those on specific bills, included those held by the House committee on interstate and foreign commerce in connection with its "national transportation inquiry." The latest series of these sessions were those held this month on that phase of the inquiry which relates to the readiness of the carriers to handle any defense load. The presentations included that of Robert R. Young, chairman of the Chesapeake & Ohio and of the Federation for Railway Progress; and the reply of William T. Faricy, president of the Association of American Railroads (see *Railway* Age of June 12, page 59, and June 19, page 33).

One of the veteran members of this House

MONOPOLY HAS OBLIGATIONS AS WELL AS PRIVILEGES

"The crises precipitated by the railway and coal disputes have cast new doubt on the adequacy of existing federal labor legislation. Changing conditions have brought about a situation in which some work stoppages are not primarily weapons against the contending parties in disputes but against the general public. This is preeminently true of disputes in the railroad and public utility industries, in which both labor and management might be able to withstand the effects of a suspension for weeks or months, but even a brief interruption of service would have the gravest effects on the general life of the community or nation.

Railroads are public utilities endowed with monopoly privileges, legally obliged to maintain service, and charging rates fixed by governmental authority. It would be perfectly logical and reasonable to require persons accepting railway employment to do so with the clear understanding that they, like their employers, would be barred by the nature of their services from some of the privileges, as well as some of the disadvantages, that apply to industry in general.

Our existing laws do not take sufficient account of present-day realities . . . The most glaring inadequacy is found in the Railway Labor Act. That act, passed twenty-two years ago, set up a rather elaborate procedure for the settlement of disputes. . . . It was hoped that these prescribed steps, with their enforced delays, combined with the force of public opinion, would suffice to prevent disputes from resulting in suspension of railway operations. Hence, no provision was made to prohibit such a suspension or to terminate one should it occur. The carriers are of course required to maintain operations, but there is no similar compulsion on the unions. . . . The very least that should be done, and done promptly, is to make railway stoppages subject to restraint comparable to that provided for other industry by the Taft-Hartley Act. If such action should prove sufficient, it would be a relief to dispense with more thoroughgoing and perhaps more logical measures.

—*The Guaranty Survey of the Guaranty Trust Company*

committee on interstate and foreign commerce will not return to Congress next year. He is Representative Lea, Democrat of California, former chairman of the committee and ranking minority member during the present Congress when Representative Wolverton, Republican of New Jersey, has been chairman. Mr. Lea, who is not a candidate for re-election, has been a member of Congress for 32 years—28 of them as the nominee of both the Democrat and Republican parties.

COURT DECISION THREATENS

(*Continued from page* 120)

of sawmills, 34 percent were manufactured in Oregon and Washington. Of the $581 million of tires and inner tubes, 40 percent were manufactured in Ohio alone. Of the $445 million of non-ferrous products, 55 percent were alloyed in Connecticut, New York and New Jersey. Of the $422 million of agricultural machinery and tractors, 68 percent were manufactured in Illinois and Wisconsin.

Decentralization may be desirable in some cases for military or other reasons. But it should not be compelled by the implacable necessity of proximity to markets, with complete disregard of factors equally or more important—accessibility to raw materials, availability of skilled labor, climatic and other physical conditions, and many others. Even where the present location of industry has resulted from historical accident, communities and whole regions have been built up in reliance upon such industry.

Unrestricted Distribution Essential

A similar concentration of consumer markets has developed in this country. The three North Atlantic states (New York, New Jersey and Pennsylvania) and the five East North Central states (Ohio, Indiana, Michigan, Illinois and Wisconsin) account for 55 percent of the national volume of wholesale trade, and for 45 per cent of the national volume of retail trade.‡ Every existing plant labors under a freight disadvantage in one or more of these markets. Consumers will be the first to suffer if they are deprived of the competition which now exists for their patronage among many producers, far as well as near.

The railroads realize, even better than these figures indicate, how dependent they are upon our present system which permits unrestricted transportation from each producer to all consumers whom he wishes to serve, regardless of distance. They can readily see how the industries and regions with whose welfare they are so closely allied will wither and die if their markets are shrunk to those areas to which they enjoy a freight advantage. They are in a position to present up-to-date studies to Congress and the public, which will demonstrate the fallacious economics of those theorists who would divide our country into small marketing areas, each served by a single local producer.

The railroads were not deterred by the false cry of "monopoly" from persuading Congress and the public of the wisdom and fairness of the Bulwinkle Bill. They should not be dissuaded by any similar shibboleths from cooperating with the industries and regions affected, in urging the desirability of preserving our present free competitive method of unrestricted national distribution.

‡ All figures are taken from the 1939 Census of Business.

GOOD READING

YOUR RAILROAD publishes some first class reading matter. If you read it carefully, and take it seriously, it can make you healthy, wealthy (or, at least, not poor), and wise.

Our favorite railroad book is the one that carries the safety rules. It isn't the liveliest reading in the world, but it's just about the most important.

How long is it since you last looked at those rules? It's surprising how easy it is to forget just one rule—and one violation can put you in the hospital.

The Safe Railroader, the first national magazine concentrating on railroad safety, was scheduled to make its appearance in June. To be published bi-monthly by the National Safety Council and aimed at railroad employees, the magazine's 16 pages will carry cartoons, brief articles on major accident problems, jokes and verse. The illustration shows a page in the June issue. The Safe Railroader is the brain child of J. R. Tenney, safety director of the Western Maryland and a member of the executive committee of the council's railroad section. It is modeled closely upon the Safe Worker, another council publication now reaching 400,000 industrial workers each month, and has already been ordered by a number of railroads for distribution to their employees. Copies can be ordered with or without the railroad's name imprinted on the cover. Rates and full information can be obtained from the council at 20 N. Wacker drive, Chicago 6.

GENERAL NEWS

Gass Reports on Car Supply and Outlook

Gondola shortage is most serious; box car demands increasing

Greater observance of the ownership principle in car distribution through enforcement of car service rules resulted in "further substantial progress" in the relocation of box cars to owners' rails during May, it is reported by Arthur H. Gass, chairman of the Car Service Division of the Association of American Railroads, in his first analysis of the "national transportation situation" since succeeding Warren C. Kendall as chairman of the division. As reported in *Railway Age* of May 29, page 50, Mr. Kendall, who originated the monthly reports, has been given leave of absence by the A.A.R. because of illness.

According to Mr Gass, nearly 31 per cent of all box cars were on home rails on June 1, the highest comparable figure since August 1, 1943, with plain box cars on home lines as of June 1 totaling 198,312, an increase of 10.7 per cent over May 1 and an increase of 61.5 per cent over June 1, 1947. On western roads, where special efforts have been made to build up the box car supply in preparation for the winter wheat harvest, the gain amounted to 18.8 per cent as compared to May 1 and 80.9 per cent as compared to June 1, 1947. He reported that open-top cars on home lines showed a decline during the same period "as the natural result of increased coal production and accelerated industrial production following resumption of work in the coal fields."

Coal Volume Up in May

With respect to the demands for hopper cars, Mr. Gass reported that during the six-week period ended June 5, bituminous coal production averaged 13,367,000 tons per week, the heaviest reported for any similar period since 1927. He said he expected that production peak to continue until June 28, when the miners start their annual vacation extending through July 5. Although coal requirements for 1948 have been estimated at about the same level as last year, Mr. Gass said, production is currently running about two and one-half weeks behind the 1947 output because of recent work suspensions in the bituminous fields and the "unusually severe" weather conditions experienced in January and February.

The C.S.D. chairman commented further that the Great Lakes coal shipping program also was adversely affected by the mining suspension, although the coal tonnage shipped as of June 8 was only about 3 per cent under 1947, and that the tentative allocation program for exporting coal also was not met in May because of the mining suspension.

Mr. Gass also disclosed that a total of 5,395,955 hopper cars were loaded with all commodities during the first 23 weeks of 1948, a decrease of 2.4 per cent as compared with the corresponding 1947 period. "As the loss of coal loadings up to this date amount to 8 per cent," he said, "it will be appreciated that heavy loadings recently of hoppers with other commodities, particularly sand, gravel and ore, have been considerably above loadings of these commodities during this period of 1947."

Gondola Supply "Inadequate"

As for other types of open-top cars, Mr. Gass reported that there has been no relaxation in gondola car demands during recent weeks, particularly in the Eastern and Allegheny territories where, he said, the supply of these cars is inadequate to fully protect volume movements of ore and iron and steel products, and also at North Atlantic ports, where, he observed, the railroads are having a "most difficult time" in providing gondolas for import ore, which is up 50 per cent from last year's movement. "Without doubt, gondolas now constitute our No. 1 problem and all are urged to handle these cars as efficiently as possible," he said, adding that hoppers have been substituted for gondolas in "many cases."

With respect to the box car supply situation, Mr. Gass reported that favorable weather conditions prevailing through the grain belt for the past month have stimulated the winter wheat crop to maturity much faster than was anticipated, with the result that demands for box cars on the principal grain originating railroads are "very heavy." The June 1 crop report of the Department of Agriculture, he said, revised upward to 877,230,000 bushels the indicated production of winter wheat, an increase of 31,746,000 bushels over the May 1 estimate. The June 1 prospects, he said, indicate that a production of 315,195,000 bushels of spring wheat is probable this year, which, added to the winter crop, points to a total wheat production of 1,192,425,000 bushels, the second largest total wheat crop in history. Despite those heavy requirements, however, Mr. Gass stated that the car supply on the granger roads is "considerably better" than it was last year.

Mr. Gass said that the supply of box cars undoubtedly will be "very tight" during the peak of the movement around July 4, and that elevators will be blocked and grain piled on the ground. He added, however, that in view of the improved box car supply this year it is expected that the grain roads will be able to move the crop from country loading points as rapidly as it can be absorbed at the terminal markets. "Although the movement of the winter wheat harvest constitutes the major box car supply problem at the present time," he said, "demands for box cars to load the many other commodities requiring this type of equipment are also increasing rapidly and will continue to do so until the season's peak loading period is passed."

With respect to other types of closed cars, Mr. Gass reported that (1) eastern and southern roads continue to expedite the empty return movement of ventilated box cars to the loading areas with the result that there is an ample supply to take care of all requirements without delay; (2) the refrigerator car supply has been satisfactory for the past month, with all orders for reefers throughout the country being filled currently; (3) the supply of stock cars is ample to handle current requirements; and (4) as a result of recent labor difficulties, plus a continued shortage of steel, automobile manufacturing plants have an adequate supply of device-equipped cars to protect their present needs.

Data on Average Load

Mr. Gass's report also refers to figures released recently by the Interstate Commerce Commission to the effect that the average load per car of carload freight was 40.98 tons in 1947, as compared with 41.01 tons in peak year of 1943. The 1,537,545,785 tons, including less-carload freight, loaded in 1947, however, broke all records, exceeding 1944, the peak war year, by 3.41 per cent, and 1929, the previous record peacetime year, by 14.8 per cent. "The good showing in 1947," Mr. Gass commented, "was in part influenced by a larger movement of certain heavy loading commodities, particularly products of mines and some products of agriculture. While the favorable result was not entirely due to a general increase in the average load of all commodities, the record as a whole is exceptionally good."

The report discloses that the detention of freight cars over the free time

of 48 hours during May averaged 17.49 per cent, as compared with 16.16 per cent for April and 15.68 per cent for May, 1947, and that the average turnaround time for all types of cars last month was 13.27 days.

Unions Protest Request of D.L.&W. For AB Brake Installation Extension

Four railroad unions—the Brotherhood of Railroad Trainmen, Order of Railway Conductors, Brotherhood of Locomotive Engineers and the Brotherhood of Locomotive Firemen and Enginemen—have asked the Interstate Commerce Commission to deny a petition filed by the Delaware, Lackawanna & Western for an extension from January 1, 1949, to December 31, 1951, of the time within which it will be required to complete the installation of AB brakes and appliances on its freight cars.

The D. L. & W. petition, noted in *Railway Age* of June 19, page 56, was in response to a commission order of 1945 in the Docket No. 13528 proceeding, wherein it directed all roads to equip all of their cars used in freight service, except those equipped with passenger-car brakes, with power brakes and appliances for operating power brake systems, conforming to the specifications prescribed by the commission.

According to the unions, the D. L. & W.'s request carries the "implication" that it has made an "eleventh hour effort" toward compliance with the commission's order. For more than 12 years the D. L. & W. has "lagged behind" in the installation program, the brotherhood stated, adding that any efforts which may have been made "at the last minute" by the carrier "fell far short" of any adequate showing of good cause which would entitle the road to the extension.

The commission, meanwhile, also has been requested by the Illinois Central to extend until December 31, 1950, the time within which that road must comply with the same order. It told the commission that, under its present program, it will have a total of approximately 8,520 freight cars to equip on next January 1.

Strike-Injunction Hearing Now Set For July 1 by Justice Goldsborough

Acting upon the request of the Department of Justice and the three holdout operating unions which threatened a nationwide strike on May 11, Justice T. Alan Goldsborough, of the United States District Court for the District of Columbia, has tentatively rescheduled for July 1 a hearing on the federal government's petition for a permanent injunction to restrain the brotherhoods and their leaders from staging the walk-out.

Meanwhile, the three unions — the Brotherhood of Locomotive Engineers, headed by Alvanley Johnston; the Brotherhood of Locomotive Firemen and Enginemen, of which D. B. Robertson is president; and the Switchmen's Union of North America, headed by A. J. Glover—have appealed to the Circuit Court of Appeals for the District of Columbia Justice Goldsborough's decision of June 10, when, as noted in *Railway Age* of June 12, page 65, he granted the government's petition for a preliminary injunction. Although the unions moved for an expedited hearing on their appeal, they nevertheless have consented to the government's request that it be allowed until June 29 to file its objections to the appeal.

As reported in *Railway Age* of June 19, page 49, Justice Goldsborough originally set June 22 as the date of hearing on the petition for a permanent injunction. That date later was extended to June 24, and then came the above-mentioned further extension to July 1, with the preliminary injunction to remain effective until final disposition of the case.

The extensions have given counsel for both the government and brotherhoods additional time in which to submit to Justice Goldsborough written stipulations embodying agreed-upon statements of the facts. Justice Goldsborough has announced that he will accept such statements from the contesting parties prior to the scheduled court hearing, thus eliminating the need for oral argument and the testimony and cross-examination of witnesses, and making possible a decision on July 1.

John E. Benton Dies

John E. Benton, general solicitor of the National Association of Railroad and Public Utilities Commissioners for 25 years and the association's advisory counsel since 1945, died on June 21 at the Suburban Hospital, Bethesda, Md. Before coming to Washington in 1918, Mr. Benton served as a member New Hampshire Public Service Commission. He was in his 74th year.

Equipment on Order

Class I railroads and private carlines had 127,689 new freight cars on order on June 1, compared with 101,430 on order June 1, 1947, according to the Association of American Railroads. Of the former total, Class I roads and railroad-owned private-controlled refrigerator car companies had 111,336 new freight cars on order, as compared with 98,630 on order on June 1, 1947.

Cars on order by Class 1 roads and railroad-owned private-controlled refrigerator car companies on June 1 included 32,080 box cars, of which 31,639 were plain and ventilated and 441 automobile box cars; 48,668 hopper, including 4,024 covered hoppers; 17,860 gondolas; 3,682 flat; 7,550 refrigerator; 601 stock and 895 miscellaneous freight cars. Of the total number of new freight cars which Class I roads had on order on June 1, 22,719 will be built in railroad shops and 88,617 in outside shops.

The Class I roads also had 1,596 locomotives on order on June 1, the most since August 15, 1923, when the number was 1,674. On June 1, 1947, there were 748 on order. The 1948 total included 111 steam and 1,485 Diesel-electric locomotives, compared with 30 steam, six electric and 712 Diesel-electrics on June 1, 1947.

Class I roads and railroad-owned private-controlled refrigerator car companies put 41,083 new freight cars in service in the first five months of 1948, compared with 15,486 in the same 1947 period. Of the former total, 9,379 were installed in May, the greatest number of new freight cars installed in service in any month since April, 1942. Those installed so far this year included 17,426 box cars, of which 16,503 were plain and ventilated and 923 automobile; 16,239 hopper cars, including 594 covered hoppers; 4,163 gondolas; 2,846 refrigerator; 42 flat; 249 stock and 118 miscellaneous freight cars.

The Class I roads also put 527 new locomotives in service in the first five months of 1948, of which 11 were steam, four electric and 512 Diesel-electric. New locomotives installed in the same period last year totaled 346, of which 57 were steam and 289 were Diesel-electric.

The Class I roads and railroad-owned private-controlled refrigerator car companies retired 29,293 freight cars in the first five months of 1948, of which number 8,257 were retired in May. In the same 1947 period, 20,562 cars were retired.

New Gas Pipe Line Proposed

The Texas Gas Transmission Corporation has filed with the Federal Power Commission an application seeking authority to construct 840-mile of 20-in. and 26-in. pipe line from Texas to Ohio to deliver additional natural gas to areas of Kentucky, Ohio and Pennsylvania, with its eastern terminus near Middletown, Ohio. Full contract quantities can be delivered by the spring of 1950, the application said.

New Army Chief of Transportation Has Served Military Since 1916

Major General Frank A. Heileman, United States Army, whose appointment as chief of transportation of the Army, effective June 11, was noted in *Railway Age* of June 19, page 58, was born in St. Louis, Mo., on March 13, 1891. A graduate of the University of Missouri, where he received a Bachelor of Science degree in mechanical engineering in 1914, General Heileman, who has served as assistant chief of transportation since September 19, 1947, succeeds Major General Edmond H. Leavey. The latter has been appointed Army comptroller.

The new chief of transportation has been affiliated with the armed forces since June, 1916, when he enlisted as a private with the Missouri National Guard. He was commissioned a second lieutenant in the infantry branch of the regular Army in March, 1917, and in 1923 was transferred to the Corps of Engineers. General Heileman now holds the permanent rank of brigadier general and the temporary rank of major general, to which level he was promoted on January 23.

During World War I, General Heileman served as an infantry captain with the American Expeditionary Forces in France, where he participated in the Meuse-Argonne offensive. Following his

Maj. Gen. Frank A. Heileman

return to this country, he was assigned successively to various infantry and engineers units at Camp Grant, Ill., Fort Benning, Ga., and Fort Sam Houston, Tex. During 1926 and 1927, while a captain with the engineers, he was detailed as an administrative assistant and engineer for Army-supervised flood-control projects in the Midwest.

Following graduation from the Engineer School, Fort Humphreys, Va., in August, 1928, and from the Command and General Staff School, Fort Leavenworth, Kans., in June, 1931, General Heileman returned to Fort Benning, as an instructor in engineering at the Infantry School. After his return to the United States in 1937, following two years' service with the Corps of Engineers in the Canal Zone, he was named executive assistant to the division engineer, Great Lakes Division, Cleveland, Ohio.

General Heileman was graduated from the Army War College, Washington, D. C., in September, 1939, and served thereafter in various staff and headquarters positions in Washington. In October, 1943, he was named director of supply, Army Services Force, Washington, and in July, 1945, was assigned as assistant chief of staff, G-4, Army Forces Western Pacific.

General Heileman's military decorations include the Legion of Merit, the Distinguished Service Medal and the Bronze Star Medal.

1947 Crossing Accidents

Accidents at railroad-highway grade crossings during 1947 resulted in the death of 1,790 persons and injuries to 4,251, according to the latest compilation by the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission. In 1946, 1,851 persons were killed and 4,397 injured.

Crossing accidents last year totaled 4,015, as compared with 4,001 in 1946, an increase of 0.3 per cent, while fatalities and injuries each declined 3.3 per cent.

Another tabulation shows that the 1947 crossing fatalities accounted for 45.39 per cent of the persons killed that year in all railroad accidents resulting from train operation. This compares with 44.42 per cent in 1946 and 42.62 per cent in 1945. Crossing accidents accounted for 14.59 per cent of 1947's non-fatal injuries, as compared with 14.52 per cent in 1946 and 12.43 per cent in 1945.

According to the summary, 1,634 freight trains and 1,427 passenger trains were involved in the 3,608 rail-highway accidents involving motor vehicles in 1947. The number of grade-crossing accidents per million train-miles was higher in 1947 for all kinds of trains, except work trains, as compared with 1946, the frequency rate being 2.65 per million train-miles in 1947 (as compared with 2.63 in 1946) for freight trains, and 3.44 for passenger trains, as compared with 3.30 in 1946. Approximately 64 per cent of the accidents in which the motor vehicle was struck by the train occurred in the daylight, while about 72 per cent of those in which the motor vehicle ran into the side of the train occurred after dark.

As was the case in 1946, December was the 1947 month in which the greatest number of crossing accidents occurred. Saturday, which has held first place since the compilation was first begun in 1935, remains the day of the greatest accident frequency. The weather was reported "clear" when 67.99 per cent of the accidents occurred; and the speed of the motor vehicle was given as "standing" or moving at not more than 30 m.p.h. in 59.17 per cent of the accidents involving motor vehicles.

"An accurate measure of exposure to accidents, based on the volume of rail and other traffic at grade crossings, is not available," the bureau observed. "The best standards obtainable which afford comparisons over a period of years are train-miles operated and motor vehicle registrations. Train-miles decreased 0.8 per cent and motor vehicle registrations increased 10.2 per cent in 1947 compared with 1946. Using these data in connection with rail-highway accidents, there was an increase of 0.07 accident per million train-miles in 1947, whereas there was a decrease of 8.2 accidents per million registrations. The ratio of accidents to train-miles has been increasing since 1944; the ratio based on registrations decreased in 1946 and 1947. The number of accidents involving passenger automobiles, motor buses and motor trucks increased 1.4 per cent in 1947, but deaths and injuries therefrom decreased 2.4 and 2 per cent, respectively."

May Revenues 9.7 Per Cent Above Those of May, 1947

From preliminary reports of 82 Class I railroads, representing 81.5 per cent of total operating revenues, the Association of American Railroads has estimated that the May gross amounted to $647,525,387, an increase of 9.7 per cent above the $590,090,993 reported for the same 1947 month. Estimated May freight revenues amounted to $540,798,451, as compared with $480,422,637, an increase of 12.1 per cent, while estimated passenger revenues amounted to $58,442,215, compared with $63,391,207, a decrease of 7.8 per cent. The estimate for all revenues was $48,284,721, compared with $46,276,979,an increase of 4.3 per cent.

Annual RR Return of 7½ Per Cent Is Imperative, Says William White

If railroads are to attain the degree of prosperity that will enable them to provide the kind of service required by American industry and the public it will be necessary for them to earn an annual return of about 7½ per cent, William White, president of the Delaware, Lackawanna & Western, said in Buffalo, N. Y., on June 16. Speaking at the 69th regular meeting of the Great Lakes Regional Advisory Board, Mr. White added that an annual return of 6 per cent would be inadequate in the light of recent mounting costs caused by high wages and the high prices of new equipment and improvements of all kinds.

"I am aware that we in the railroad business must not price ourselves out of the market, and we must not expect freight to carry the whole burden" the Lackawanna president continued. "There have been, and there will continue to be, plenty of endeavors to make our various services self-supporting. I am not sure all will be successful, but we are well aware of the reluctance of shippers to pay high freight rates and have them dissipated in losses on other services."

Mr. White said he regretted the necessity for rate increases "so frequently within such a short while." It magnifies the increases, and "we realize that it makes it difficult for business to work out its own problems by having freight rate increases too often. That, however, is the penalty we are paying for not having had sufficiently high freight rates before, during and after the war, so that during

the period of high traffic volume the railroads could have made some real money and laid by a 'nest egg' for stormy weather. Freight rates in the east are about 48½ per cent higher than in 1939. Government's index of wholesale prices has risen 111 per cent since 1939. Farm prices have advanced 204 per cent in the same period. Most of the increase in freight rates has occurred since last October, although it has been responsible for only a minor portion of increased prices."

L. M. Betts, manager, railroad relations section, Car Service Division of the Association of American Railroads, told the meeting that American railroads have committed themselves to greater capital expenditures for expansion and improvement in 1948 than in any previous year. Up to now, he said, the peak figure was $1,026,000,000, in 1923. The anticipated figure for 1948 is $1,600,000,000, which is 75 per cent more than last year's figure, and the 1948 program is on such an expanding scale that expenditures in the fourth quarter will be at an annual rate of $1,800 000,000. Although these sums are inflated considerably by the high costs of labor and materials, Mr. Betts added, high records are being made in the number of units of service involved.

Taking all factors into consideration, the A.A.R. officer said, it is believed that railroad service in 1948 in all its numerous phases will be better than that offered last year. Cars will be slightly more plentiful and of better average condition; locomotive power should be in more generous supply and high marks should be established for average transportation performance per car day. "With continued vigilant support and cooperation from shipper agencies, particularly in matters of efficient freight-car utilization, a reasonably satisfactory and adequate service will be produced for the benefit of our railroad patrons."

Harvey E. Chapman, chairman of the committee on freight loss and damage and traffic manager of the S. S. Kresge Company, told a special session of the meeting, attended by 200 board members, that vigorous steps must be taken by everyone to halt the critical rise in loss and damage claims. "Employee morale—shipper and carrier—is the source of our trouble and there we must continue to concentrate our efforts," Mr. Chapman said. "This 'I don't give a darn' attitude on the part of the employees must be corrected, diplomatically but soon."

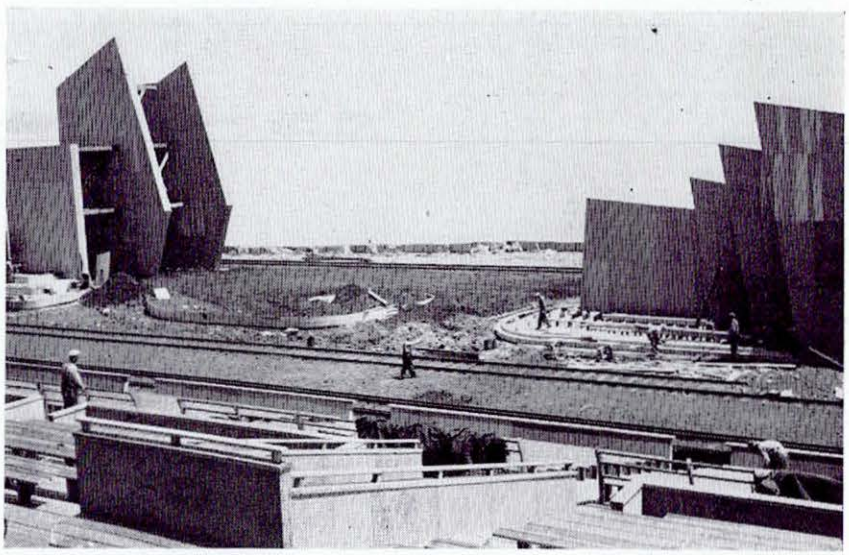
A suggestion that the A.A.R. establish a new section devoted exclusively to l.c.l. freight problems was contained in the report of the committee on l.c.l. service, the chairman of which is K. S. Wright, traffic manager, Carborundum Company. The report, which was approved, said such a step was recommended because the national l.c.l. freight volume was now large enough to warrant careful supervision by a special body. It cited situations at some interchange points where the l.c.l. freight, handled expeditiously by the first road, was considered only a "necessary evil" by the second road, thereby defeating the purpose of the first road in featuring rapid l.c.l. handling. Another suggestion—to invite to future meetings of the board a railroad man specializing in l.c.l. freght—also was approved.

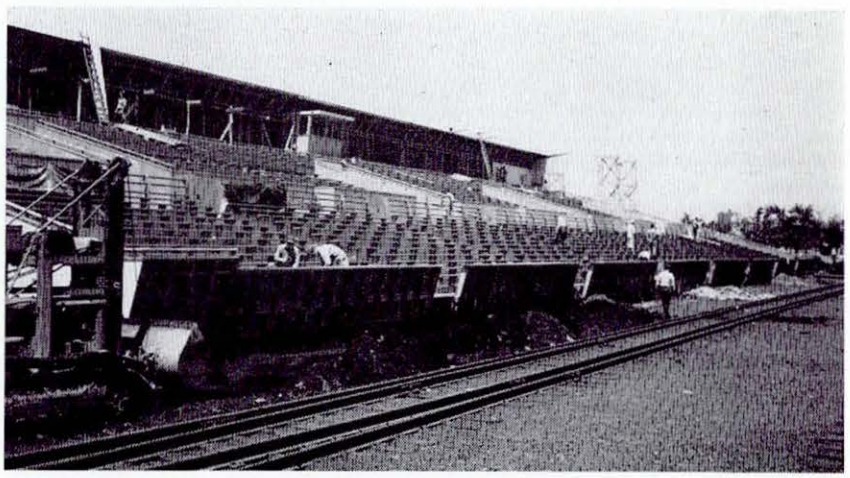
C. of N. J. Polls Commuters On Coach-Interior Choices

Central of New Jersey commuters will be given an opportunity during the next three weeks to select new decorative treatments for the interiors of the road's coaches. The voting will take place as four coaches, each with a different interior styling, are displayed at eight different locations on the line. The styling preferred by the commuters will become standard for all C. of N. J. coaches.

Patrons inspecting the four display coaches will be asked to indicate on ballots their choices as to (1) which of the four color combinations they prefer; (2) which upholstery fabric they prefer (on display will be the plush now used by the road; woolen Bedford cord; and two types of nylon). (3) whether or not they prefer more than one color of upholstery in the same coach; (4) whether or not they like a new seating arrangement at the end of the coaches; and (5) which of the two displayed types of ceiling they prefer.

The several alternative plans for redecorating the coach interiors were designed by Howard Ketcham. In announcing plans for the exhibitions and voting, E. T. Moore, chief executive officer, said: "The modernizing of coach interiors will provide more comfortable and pleasant riding for our commuters, and the program will not increase the cost of commuter service.





Evidence that construction work is moving along steadily in preparation for the Railroad Fair at Chicago can be seen at the site of the show's mammoth pageant. The 450-ft.-long stage (above) is about three-fourths completed and only the finishing touches are yet to be added to the 5,000-seat grandstand (below). The fair will be held from July 20 to September 6, inclusive

Materials have been very carefully selected so that any slight increase in costs as compared with old-style materials will be offset by reduced maintenance costs and ability to keep the coaches cleaner with less expense."

Representation of Employees

The International Association of Machinists, functioning through the Railway Employees' Department, American Federation of Labor, has been certified to represent machinists, boilermakers and carmen, including their helpers and apprentices, employed by the Apalachicola Northern, as the result of a check of representation authorizations conducted by the National Mediation Board. The employees involved formerly were not represented by any organization.

The Railroad Yardmasters of America has retained its right to represent yardmasters employed by the Washington, D. C., Terminal, as the result of a recent election certified by the National Mediation Board, in which it defeated the challenging Brotherhood of Railroad Trainmen, 15 to 14.

The N.M.B. also has certified the Hotel & Restaurant Employees to extend its coverage of New York, New Haven & Hartford dining car employees to include hostesses. These employees formerly were not represented by any organization.

Tells of Campaign to Change California Featherbedding Law

The campaign initiated by California railroads to amend various provisions of the railroad featherbedding and make-work statute that has been on the state's books since 1911 was the subject of an address by Leo E. Sievert, executive representative of the president of the Atchison, Topeka & Santa Fe, delivered at the 76th regular meeting of the Pacific Coast Transportation Advisory Board in San Francisco, Cal., on June 17. "The proposed amendment is simple," Mr. Sievert said. "It does but two things. First, it repeals those provisions of the law that require freight trains to carry more than two brakemen. The second provision . . . takes care of the[Brotherhood of Railroad Trainmen's] criticism that the existing law is necessary to insure safe operation of freight trains."

"The amendment," he added, "specifically gives to the Public Utilities Commission the unquestioned power to investigate and decide if any brakemen in addition to two are reasonably necessary for the safe operation of freight trains of over 49 cars. This is the way the law will work after its adoption: Every freight train will carry two brakemen, or as many more as management deems necessary. Suppose, however, the brotherhoods believe that where main-line grades exceed 2 per cent for a distance of 5 miles or more, four brakemen are needed for the safe operation of trains carrying 80 cars or more, and that management does not agree. The brotherhoods can apply to the commission for such an order. After investigation by its own staff of expert safety engineers and a full public hearing, the commission will pass upon the application. Not only may this action be taken upon the petition of any interested person or union, but the commission will have the power to institute such an investigation on its own motion.

"In that way, the proper regulatory body will decide what constitutes safe operation, not the unions, the legislature or the railroad management. . . . Our best estimate is that the 'excess brakemen law' adds an annual charge of nearly $3,000,000 to the California railroads' operating costs. We should like to be able to spend that money for new cars, locomotives, rails, etc., and thereby give you shippers better and faster service."

Attendance at the meeting totaled 387, including 227 railroad representatives, 115 industrial company representatives and 45 representatives of other types of businesses. The next meeting of the board will be held at the Biltmore Hotel, Los Angeles, Cal., on September 15-16.

Shows State-to-State Flow Of 1947 3rd-Quarter Traffic

The Bureau of Transport Economics and Statistics of the Interstate Commerce Commission has issued six tables showing, on a one-per-cent-sample basis, the state-to-state movements of tons of freight as represented by the carload terminations reported by Class I railroads for the third quarter of 1947. The compilation is Statement No. 4814 of the bureau.

As in the previously issued compilations covering last year's first and second quarters, the data are some of those being taken from waybills submitted in response to the commission's September 6, 1946, order requiring Class I roads to file audited waybills representing their carload terminations which are numbered "1" or with digits ending in "01."

Cut Through-Pullman Service to Southwest via St. Louis

Through Pullman service between Washington, D. C., and San Antonio, Tex., via the Chesapeake & Ohio, the New York Central and the Missouri Pacific, was discontinued on June 19. Through sleeping cars between New York and Houston and Dallas-Fort Worth, via the New York Central and the Missouri Pacific, will be discontinued on July 16. Through car service to Dallas, Forth Worth, and Oklahoma City, Okla., in connection with the Missouri-Kansas-Texas and the St. Louis-San Francisco was discontinued last May 16 when schedule changes on the latter roads made connections at St. Louis impractical. The Mexico City car which was operated in connection with the Missouri Pacific and the National of Mexico was withdrawn April 25, due to lack of sufficient patronage.

The July 16 cuts will end all car service through the St. Louis gateway via N.Y.C. and C. & O., and will permit the former road to discontinue operation of trains No. 111 and 212 between New York and St. Louis—currently handling but two through sleepers—and operating on a schedule closely approximating that of the "Southwestern Limited." The move is further prompted by the fact that sufficient new type sleeping car equipment is not yet available for assignment to the through service, but is available for the component parts of the journeys. When current equipment orders are fulfilled, restoration of some of the lines is anticipated.

April Accident Statistics

The Interstate Commerce Commission has made public its Bureau of Transport Economics and Statistics' preliminary summary of steam railway accidents for April and for this year's first four months. The compilation, which is subject to revision, follows:

Item	Month of April		4 months ended with April	
	1948	1947	1948	1947
Number of train accidents *	787	1,284	4,262	5,825
Number of casualties in train, train-service and nontrain accidents:				
Trespassers:				
Killed	110	104	386	329
Injured	94	86	296	284
Passengers on trains:				
(a) In train accidents*				
Killed	4	2	18	28
Injured	185	198	563	605
(b) In train-service accidents				
Killed	3	6	9	12
Injured	225	227	865	844
Travelers not on trains:				
Killed	—	1	2	2
Injured	98	68	382	331
Employees on duty:				
Killed	40	107	215	284
Injured	2,226	2,809	10,829	12,235
All other nontrespassers:**				
Killed	122	142	573	756
Injured	432	452	2,358	2,399
Total — All classes of persons:				
Killed	279	362	1,203	1,411
Injured	3,260	3,840	15,293	16,698
Persons:				
Killed	110	119	532	698
Injured	295	258	1,520	1,586

* Train accidents (mostly collisions and derailments) are distinguished from train-service accidents by the fact that the former caused damage of more than $150 to railway property in 1947. Beginning January 1, 1948, this minimum was raised to more than $250. Only a minor part of the total accidents result in casualties to persons.

** Casualities to "Other nontrespassers" happen chiefly at highway grade crossings. Total highway grade-crosing casualties *for all classes of persons, including both trespassers and nontrespassers*, were as follows:

Canadian Transport Board Gets New Chairman

As a move to meet objections of seven provincial governments to the constitu-

tion of the Canadian Transport Board before which they have been asked to make further appearances in their sustained opposition to approval of a freight-rate increase for Canadian railroads. Prime Minister King recently announced the resignation from the board of Col. James A. Cross and the appointment to succeed him as chief commissioner of Justice Maynard B. Archibald of the Nova Scotia Supreme Court. This move, and legislation requiring that the chief commissioner shall be of specified judicial rank, are expected to meet the protesting provinces' demand that their grievances must be considered by a body with judicial standing. This maneuver is expected also to avert the naming of a royal commission to make the general investigation of Canadian freight rates which the Transport Board has been instructed to undertake.

Export of Ties Under E.R.P. To Average 2,500,000 a Year

Total United States exports of railway ties to countries participating in the European Recovery Program are not expected to exceed an average of 2,500,000 ties annually during the four-year program, the Department of Commerce has reported through its Forest Products Branch, Office of International Trade. It is estimated by the nations included in the program that they will need to import a total of about 51,000,000 ties from all sources during the four-year period. Total requirements of the cooperating European nations have been officially set at 123,000,000 ties during 1948-1951 inclusive, of which number the participating countries expect to be able to produce about 72,000,000.

Canadian National's 1948 Subsidy Set

To provide for financing the deficit that may be incurred in 1948 in the operation of the government-owned Canadian National (including its air line subsidiary, and providing at the same time for capital outlay for new equipment and fixed property), the Canadian transport minister has asked the House of Commons at Ottawa to approve an allocation from the public treasury of $85,882,200, the largest sum sought for this purpose in recent years.

C. of N. J. Would Increase Its Commutation Fares

The Central of New Jersey has filed tariffs with the Interstate Commerce Commission and the New Jersey Board of Public Utility Commissioners which propose to put into effect on July 5 increased commutation fares of varying amounts up to a maximum of less than 12 cents a trip, depending on the type of ticket and the length of the trip. The road said the proposed increases would provide additional revenues necessary because of increases of about $1,000,000 annually in the "out-of-pocket" cost of operating its commutation service.

Steelman Trying Again to Mediate Hold-Out Op Case

Dr. John R. Steelman, assistant to President Truman, this week resumed his efforts to mediate the wage and rules dispute between the railroads and the hold-out operating unions whose May 11 strike threat brought government control of the carriers under Secretary of the Army Royall. On June 23, the Presidential assistant held a separate meeting with the three union leaders and with the chairmen of the railroads' three regional conference committees. Further conferences were expected to be held on June 24.

The meetings were the first since June 2 when the previous series broke

Selected Income and Balance-Sheet Items of Class I Steam Railways in the United States

Compiled from 127 reports (Form 1BS) representing 131 steam railways.

(Switching and Terminal Companies Not Included)

		United States			
		For month of March		For the three months of	
	Income Items	1948	1947	1948	1947
1.	Net railway operating income	$60,724,331	$73,924,143	$142,646,578	$176,243,934
2.	Other income	17,285,602	15,656,104	56,077,735	48,029,601
3.	Total income	78,009,933	89,580,247	198,724,313	224,273,535
4.	Miscellaneous deductions from income	3,915,897	3,241,415	11,202,887	9,560,477
5.	Income available for fixed charges	74,094,036	86,338,832	187,521,426	214,713,058
6.	Fixed charges:				
	6-01. Rent for leased roads and equipment	11,133,636	10,810,769	31,193,564	31,724,786
	6-02. Interest deductions[1]	24,220,565	26,044,519	72,799,038	78,525,630
	6-03. Other deductions	145,570	136,443	425,190	410,491
	6-04. Total fixed charges	35,499,771	36,991,731	104,417,792	110,660,907
7.	Income after fixed charges	38,594,265	49,347,101	83,103,634	104,052,151
8.	Other deductions	3,147,705	2,708,989	9,604,472	8,151,587
9.	Net income	35,446,560	46,638,112	73,499,162	95,900,564
10.	Depreciation (Way and structures and equipment)	30,471,453	29,368,501	90,762,541	87,077,270
11.	Amortization of defense projects	1,369,805	1,351,572	4,423,679	4,071,962
12.	Federal income taxes	26,104,975	30,265,133	71,337,602	74,997,353
13.	Dividend appropriations:				
	On common stock	9,725,988	12,152,596	38,966,044	34,456,494
	On preferred stock	11,372,449	2,572,569	17,966,393	7,919,766
	Ratio of income to fixed charges (Item 5÷6—04)	2.09	2.33	1.80	1.94

		United States	
		Balance at the end of March	
	Selected Expenditure and Asset Items	1948	1947
17.	Expenditures (gross) for additions and betterments—Road	$59,022,247	$49,885,792
18.	Expenditures (gross) for additions and betterments—Equipment	203,158,847	100,728,784
19.	Investments in stocks, bonds, etc., other than those of affiliated companies (Total, Account 707)	565,732,057	573,576,522
20.	Other unadjusted debits	162,851,184	168,116,414
21.	Cash	806,790,718	930,930,981
22.	Temporary cash investments	936,763,314	986,929,752
23.	Special deposits	128,495,214	147,593,819
24.	Loans and bills receivable	12,661,342	255,596
25.	Traffic and car-service balances—Dr.	64,098,094	52,650,489
26.	Net balance receivable from agents and conductors	125,641,637	132,574,382
27.	Miscellaneous accounts receivable	339,432,771	287,352,329
28.	Materials and supplies	800,679,664	710,427,538
29.	Interest and dividends receivable	17,679,873	16,535,564
30.	Accrued accounts receivable	163,745,942	165,117,066
31.	Other current assets	33,899,840	59,331,018
32.	Total current assets (items 21 to 31)	3,429,888,409	3,489,698,534
40.	Funded debt maturing within 6 months[2]	$152,182,623	$180,084,719
41.	Loans and bills payable[3]	3,795,000	8,935,000
42.	Traffic and car-service balances—Cr.	94,803,998	85,756,803
43.	Audited accounts and wages payable	497,804,695	446,241,673
44.	Miscellaneous accounts payable	227,702,678	205,243,508
45.	Interest matured unpaid	73,294,204	71,798,287
46.	Dividends matured unpaid	18,551,021	16,120,444
47.	Unmatured interest accrued	66,861,777	59,449,276
48.	Unmatured dividends declared	29,210,308	20,732,104
49.	Accrued accounts payable	187,469,435	153,442,317
50.	Taxes accrued	630,114,047	446,772,353
51.	Other current liabilities	97,558,475	91,891,575
52.	Total current liabilities (items 41 to 51)	1,927,165,638	1,606,383,340
53.	Analysis of taxes accrued:		
	53-01. U. S. Government taxes	508,776,425	331,594,859
	53-02. Other than U. S. Government taxes	121,337,622	115,177,494
54.	Other unadjusted credits	335,637,464	352,736,811

[1] Represents accruals, including the amount in default.
[2] Includes payments of principal of long-term debt (other than long-term debt in default) which becomes due within six months after close of month of report.
[3] Includes obligations which mature not more than one year after date of issue.

Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission. Subject to revision.

down with an announcement by the union leaders that Dr. Steelman had failed to suggest a settlement basis satisfactory to them. At that time the White House stated that the Presidential assistant might invite the parties to confer with him again if he should find what he considered "common ground" on which a settlement might be reached (see *Railway Age* of June 5, page 71).

Freight Car Loadings

Loadings of revenue freight in the week ended June 19 totaled 906,774 cars, the Association of American Railroads announced on June 24. This was a decrease of 174 cars, or 0.02 per cent, under the previous week, an increase of 5,478 cars, or 0.6 per cent, over the corresponding week last year, and an increase of 48,351 cars, or 5.6 per cent, over the equivalent 1946 week.

Loadings of revenue freight for the week ended June 12 totaled 906,948 cars, and the summary for that week as compiled by the Car Service Division, A.A.R., follows:

Revenue Freight Car Loadings
For the Week Ended Saturday, June 12

District	1948	1947	1946
Eastern ...	160,784	162,014	157,597
Allegheny ..	184,705	192,278	177,443
Pocahontas .	76,282	74,424	74,253
Southern ..	139,298	135,079	137,420
Northwestern	135,497	131,402	122,564
Cent. West. .	139,267	131,358	130,487
Southwest. .	71,745	68,737	68,154
Tot. West. Dists.	346,509	331,497	321,205
Tot. All Rds.	906,948	895,292	867,918
Commodities:			
Gr. & gr. products .	52,226	48,811	45,538
Livestock ..	11,782	12,985	13,697
Coal	202,796	191,680	187,287
Coke	14,777	13,361	11,307
For. prods. .	48,549	47,362	47,822
Ore	83,896	78,901	66,375
Merch'd. l.c.l.	105,349	115,535	125,821
Misc.	387,573	386,657	370,071
June 12	906,948	895,292	867,918
June 5 ...	821,213	900,747	830,128
May 29 ...	904,848	830,205	626,885
May 22 ...	879,158	890,605	571,473
May 15 ...	847,403	888,208	688,210
Cumulative total, 24 weeks	18,971,844	19,922,160	17,277,895

In Canada.—Carloadings for the week ended June 12 totaled 75,144 cars as compared with 77,627 cars for the previous week and 78,128 cars for the corresponding week last year, according to the compilation of the Dominion Bureau of Statistics, which is subject to correction as flood conditions had not been entirely overcome.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
June 12, 1948 ...	75,144	31,980
June 14, 1947 ...	78,128	36,611
Cumulative total for		
June 12, 1948 ...	1,756,579	843,801
June 14, 1947 ...	1,711,204	890,850

P. R. R. Leases Air Rights Over Journal Square Station

The Pennsylvania has announced the signing of a lease involving the air-rights over the Journal Square passenger station in Jersey City, N. J. The lease is for 50 years and carries a minimum total rental of approximately $6,000,000 during that period. The area included in the lease is L-shaped and directly above the Hudson & Manhattan station and the P.R.R. tracks at Journal Square, from the sidewalk level upward. It has a frontage of 306 ft., a depth of 309 ft. on the southwesterly side, and 60 ft. on the northeasterly side, making a total area of 52,956 sq. ft. Changes in the station whereby passengers may enter and leave via a new building, which the lessee is to erect on the plot, are provided for in the lease. It is understood the lessee will develope the site with a major structure to house a department store, furniture and house furnishings and other retail businesses appropriate to the locality.

Additional general news appears on page 151.

OVERSEAS

Great Britain.—The British Railways have authorized a program for 1948 amounting to the complete renewal of 1,226 miles of track and a partial renewal of a further 550 miles, though this does not result in overtaking arrears of renewal which had accumulated during the war years. Considerable use is being made of the pre-fabricated method of track relaying. New sections of track up to 60 ft. in length are assembled beforehand and taken to the site of the work. There, by means of cranes, sections of the old line are lifted complete and loaded on trucks, and the new sections of track are dropped into position.

ORGANIZATIONS

The **Pacific Railway Club** will hold meetings on July 8 at the St. Francis Hotel in San Francisco, Cal., and on August 12 at the Biltmore Hotel in Los Angeles, Cal. The subject of the July meeting will be "The 'Why' and 'How' of Store-Door Pick-Up and Delivery Service" and that of the August meeting will be "Rail Transportation of Perishable Products."

Lee J. Quasey, commerce counsel of the National Live Stock Producers Association, was elected president of the **Traffic Club of Chicago** at the organization's recent annual business meeting. Other officers elected are: First vice-president R. M. Hitshaw, freight traffic manager of the Atchison, Topeka & Santa Fe; second vice-president, L. R. Cowles, traffic manager of the Standard Oil Company of Indiana; and third vice-president, Arthur B. Murphey, assistant general freight agent of the Chicago, Rock Island & Pacific. Otis A. Green, western freight traffic manager, United States Lines, was re-elected secretary and R. J. Wallace, traffic manager, Jaques Manufacturing Company, was re-elected treasurer.

The next regular meeting of the **Railway Air Conditioning Club** will be held at the Oglethorpe Hotel, Savannah, Ga., on July 14 at 10:00 a.m.

SUPPLY TRADE

E. E. Oliver has been appointed manager of the transportation industries' advertising division of the **General Electric Company**. Mr. Oliver will be responsible for advertising and sales promotion of G.E.'s apparatus lines in the land, air and marine transportation fields. A native of Syracuse, N. Y., he was graduated from Syracuse University with a B.S. degree in finance in 1934. He was employed by G.E. immediately

E. E. Oliver

thereafter in the New York district's credit and collection office. In March, 1942, he was appointed publicity representative for the district. After nearly three years in the Navy, Mr. Oliver rejoined G.E. in January, 1946, in the advertising and sales promotion divisions in Schenectady, N. Y. He was named supervisor, exhibit and display section, in April, 1946, serving in that position until his present appointment.

John G. Little, assistant to vice-president, **Simmons-Boardman Publishing Corporation,** at Cleveland, Ohio, since 1928, retired on June 1. Mr. Little was born in North Chemung, N. Y., on September 14, 1881. He entered railroad service with the Erie in September, 1902, serving successively as trackman, rod-

man and transitman. From 1903 to 1905 he was assistant engineer at Hornell, N. Y., for the same road. In 1906 he joined the Delaware, Lackawanna & Western as assistant engineer at Binghamton, N. Y., serving in

John G. Little

the same capacity at Buffalo, N. Y., from 1908 to 1915. Mr. Little entered the employment of Simmons-Boardman in June, 1916, as eastern engineering editor of the Railway Age Gazette, now *Railway Age*, and associate editor of Railway Engineering and Maintenance. In December, 1924 he was appointed special representative for Simmons-Boardman at Cleveland, and, in 1928, to the position he held at the time of his retirement.

Gilfry Ward, vice-president of the American manganese steel division of the **American Brake Shoe Company** since 1938, also has been appointed vice-

Gilfry Ward

president of the firm's Kellogg division. Mr. Ward has been with American Brake Shoe since graduating from college in 1928. He will continue to be located in Oakland, Cal.

The **Scullin Steel Company** has announced the elections of **Torsten H. Parke, Bransford W. Crenshaw** and **Herbert F. Blattner,** formerly sales representatives, as assistant vice-presidents. Mr. Parke is in charge of the company's New York office. Mr. Crenshaw, who is in the St. Louis, Mo., office, will transfer to the Chicago office in the near future, and Mr. Blattner will remain in the St. Louis office.

Fred C. Foy, vice-president of the J. Walter Thompson Company, has accepted an appointment as vice-president and manager of the sales department, central staff, of **Koppers Company,** effective August 1.

The **Chapman Chemical Company** has opened new general offices in the Dermon building, Memphis 3, Tenn. Administrative and research activities formerly handled from Chicago and New Orleans, La., will be consolidated in Memphis, where the company has had its plant for many years.

The formation of the **Ortner Company,** which has purchased all the assets of the **Railway Accessories Company,** was announced recently. **J. L. Ortner,** formerly vice-president of Railway Accessories, is president of the new firm.

Frank L. Johnson, vice-president of the **Pressed Steel Car Company,** has been appointed vice-president in charge of railroad sales. Mr. Johnson's headquarters will be in Chicago. Pressed Steel Car also has announced the organization of a research and development division under the direction of **H. E. Chilcoat,** vice-president, with headquarters at Pittsburgh, Pa.

D. J. Hedgecock has been appointed engineering specialist in the wire, road, bar and structural division of the **Reynolds Metals Company** to succeed **T. E. Bowen,** resigned.

Kaye & MacDonald, Inc., West Orange, N. J., has announced the purchase of the Julian D'Este division of the **American Chain & Cable Co.**

Federated Metals, a division of the **American Smelting & Refining Co.,** has moved its New England office to the Statler office building, 20 Providence st., Boston 16, Mass.

Russell E. Ebersole has been appointed general manager of lamp sales for the **Westinghouse Electric Corporation** to succeed **William J. Massey,** who has retired after 50 years with the lamp division. **Harold G. Cheney** has been appointed assistant manager of lamp sales.

Arthur Wilkins has been appointed vice-president in charge of production of the **Nathan Manufacturing Company** to succeed **John D. Spaulding,** resigned.

The **American Hoist & Derrick Co.** has announced the appointment of the **Overland Supply Company,** 55 New Montgomery st., San Francisco, Cal., as its exclusive railroad supply agent for the Southern Pacific, the Western Pacific, the Northwestern Pacific, the Oakland Terminal, the Sacramento Northern, the San Diego & Arizona Eastern, the Tidewater Southern and the Pacific Fruit Express Company.

Richard Welsh, western manager for the **Nathan Manufacturing Company,** will retire on July 1, it was announced this week. Mr. Welsh was born in Clinton, Iowa, and began his railroad career

Richard Welsh

as a fireman on the Chicago & North Western at Camden, Neb. He joined Nathan Manufacturing in 1915 as a service engineer in Chicago and was appointed western manager five years later.

Fred D. Livingston, former general sales manager of the **R. H. Sheppard Company,** has been promoted to vice-president. The position vacated by Mr. Livingson

Fred D. Livingston

has been filled by **Spencer A. Ware,** who previously served in executive capacities with the Chrysler Corporation and Willys-Overland.

Russell C. Fancher has been appointed sales representative in the Detroit, Mich., area for the **U. S. Stoneware Com-**

pany. Mr. Fancher will work out of the firm's newly opened office at 6432 Cass avenue.

Standard Car Sales, Inc., 332 South Michigan avenue, Chicago, has been named railroad sales agency for the **Automatic Transportation Company** for railroads maintaining purchasing offices in Oklahoma, Kansas, Iowa, Michigan, Indiana, Ohio, West Virginia, Wisconsin, Kentucky and Illinois.

The **Tanglefoot Company** at Grand Rapids, Mich., has appointed **Ray W. Preikschat**, 8 South Michigan avenue, Chicago, as distributor in the transportation field to handle the company's complete line of sprayers and insecticides.

Danforth K. Heiple, a field engineer for **R. G. LeTourneau, Inc.**, at Peoria, Ill., has been promoted to chief field engineer, succeeding **R. C. Lewis**, who has resigned.

OBITUARY

Walter Lewis Conwell, whose death on May 27 was reported in *Railway Age* of June 5, had been president of the Safety Car Heating & Lighting Co. since 1919. He was born in Covington, Ky., on January 25, 1877, and received his higher education at the University of Pennsylvania. In 1908 he joined the Tennis Construction Company, railroad contractors, as chief engineer. Two years later he was employed as a salesman by the Westinghouse Electric & Manufacturing Co. From 1911 to 1916 he was president

Water Lewis Conwell

of the Transportation Utilities Company. In the latter year he was appointed assistant to the president of Safety Car Heating & Lighting. Elected president of the firm in 1919, he also was elected president of the Vapor Car Heating Company, Chicago, and in 1928 of the Vapor Car Heating Company of Canada. In 1945 he was elected chairman of the boards of the two Vapor Car companies. At the time of his death, Mr. Conwell also was a director of the Pintsch Compressing Company, the Wilcolator Company, the Carrier Corporation and Seatrain Lines, Inc.

EQUIPMENT AND SUPPLIES

Missouri Pacific Lines Order 45 Diesels, 2,000 Freight Cars

The Missouri Pacific Lines recently placed orders for 45 Diesel-electric locomotives and 2,000 freight cars. The Electro-Motive Division of the General Motors Corporation will build eight 4,500-hp. and one 3,000-hp. freight locomotives for the Missouri Pacific, two 4,500-hp. and four 3,000-hp. freight locomotives for the International-Great Northern, and four 3,000-hp. freight locomotives for the St. Louis, Brownsville & Mexico. Orders have been placed with the Baldwin Locomotive Works for five 1,000-hp. switching locomotives for the M.P. and four 1,500-hp. road-switching and six 1,000-hp. switching locomotives for the St. L.B.&M. The American Locomotive Company received orders for four 4,000-hp. passenger and five 1,000-hp. switching locomotives for the M.P. and two 1,000-hp. switching locomotives for the I. G.N. One thousand 70-ton hopper cars have been ordered from the Bethlehem Steel Company and an additional 1,000 70-ton hopper cars will be built in the road's De Soto, Mo., shops. The authorization to purchase this equipment was reported in *Railway Age* of May 8, page 65.

U. P. Using Welded Rail

Track forces of the Union Pacific are welding 25 standard lengths of 133-lb. rail to form continuous rails 975 feet long, for use in 11 miles of open track at two locations between Kimball, Neb., and Pine Bluffs, Wyo. Pressure welding equipment of the Oxweld Railroad Service Company is being employed in the work.

FREIGHT CARS

The **Western Maryland** has ordered 200 40½-ft. 50-ton steel-sheathed box cars and 50 65½-ft. 70-ton gondola cars from the Pressed Steel Car Company and 200 52½-ft. 70-ton drop-end steel gondola cars from the Greenville Steel Car Company. Delivery of the box cars is scheduled for next December. The gondola cars to be built by Pressed Steel are scheduled for delivery during the fourth quarter of 1948, and those to be built by Greenville will be delivered in the first quarter of 1949. These cars are all but the 50 50-ton auto cars for which the road has been inquiring, as reported in *Railway Age* of June 5.

The **Chicago & North Western** has ordered 50 70-ton mill-type gondola cars from the Pressed Steel Car Company and 19 70-ton covered hopper cars from the General American Transportation Corporation. Delivery of the gondola cars is scheduled for next December and delivery of the covered hopper cars is expected during the first quarter of 1949. The inquiry for the covered hopper cars was reported in *Railway Age* of June 5.

The **Atchison, Topeka & Santa Fe** has ordered 750 50-ton box cars from its own shops. Delivery of the cars, each of which will be 40½-ft. long, is scheduled to begin in the fourth quarter of 1948.

The **Louisiana & Arkansas** has ordered 100 70-ton covered hopper cars from the General American Transportation Corporation. Delivery is scheduled for next December or January.

The **St. Louis-San Francisco** is inquiring for 700 50-ton hopper cars.

LOCOMOTIVES

The **Missouri-Kansas-Texas** has ordered two 4,000-hp. Diesel-electric passenger locomotives from the American Locomotive Company for delivery by midsummer, 1949. The two new Diesels were ordered as a result of the rearrangement of an order for freight Diesels placed by the Katy last December 30 (see *Railway Age* of January 17, page 60). Under the rearranged order, the American Locomotive Company will build, in addition to the two locomotives previously mentioned, nine 3,000-hp. freight locomotives, and the Electro-Motive Division of the General Motors Corporation will build four 4,500-hp. freight and four 3,000-hp. freight locomotives. The first of the new Diesels is to be delivered next November, with all deliveries being completed during 1949.

SIGNALING

The **Richmond, Fredericksburg & Potomac** has placed an order with the Union Switch & Signal Co. covering the necessary materials for the installation of an all-relay electro-pneumatic interlocking at Milford, Va. The materials include a Style B-30 control machine, A-5 electro-pneumatic switch layouts Style R-2 color-light signals, relays, rectifiers, transformers and coding equipment. The field installation work will be done by construction forces of the railroad.

The **Chicago, Indianapolis & Louisville** has ordered equipment from the General Railway Signal Company for the remote control of a single-track cross-

ing with the New York, Chicago & St. Louis at Linden, Ind. The 12 by 17-in. control panel will be equipped with eight track indication lights and four miniature levers for the control of two electric switch machines and 12 signals. Model 5D dual-control electric switch machines, welded steel relay cases, and Type SA searchlight signals will be used in this installation.

The **Baltimore & Ohio** has ordered equipment from the General Railway Signal Company for the remote control of three switch machines and five signals at Harvey Junction, Ill., where the single-track Baltimore & Ohio Chicago Terminal joins the double-track B. & O. main line. The control point will be at North Harvey. Model 5D dual-control electric switch machines, Type K relays, and Type U color-position-light signals will be used in this installation.

The **Missouri-Kansas-Texas** has ordered from the Union Switch & Signal Co. the necessary materials to install absolute permissive block signaling on 35 mi. of its single-track line between Waxahachie, Tex., and Hillsboro. The installation involves H-5 searchlight signals, color-light switch indicators, necessary switch boxes, rectifiers, transformers and housings, with the field installation work to be performed by the railroad's construction forces.

CAR SERVICE

I.C.C. Service Order No. 87, which modifies the free time allowed on tidewater coal and coal products at North Atlantic ports, will be supplanted by Revised Service Order No. 87, effective July 1. The revised order provides that no railroad shall allow more than an average of six days free time on cars loaded with bituminous coal, cannel coal and the coal products described in Trunk Line Tariff Bureau Tariff No. 139-D, I.C.C. No. A-859, supplements thereto or reissues thereof, held for delivery to vessels at North Atlantic ports; or allow more than an average of three days' free time on such cars delivered at port storage facilities for subsequent delivery to vessels. The revised order will expire January 1, 1949, unless otherwise modified.

I.C.C. Service Order No. 817, effective from June 14 until September 5 unless otherwise modified, directs railroads serving Arizona and California to furnish so-called giant type refrigerator cars for perishable loadings in those states, and to transport the shipments at rates applicable to the same commodities in standard reefers.

I.C.C. Service Order No. 780-A suspended Service Order No. 780 from June 12 until October 15, the presently-scheduled expiration date. The suspended order had required 25 per cent of the carload minimum to be loaded in cars of lumber forwarded from Washington and Oregon points to be stopped to complete loading.

Special Direction ODT 18A-2A, Amendment 10, effective June 10, was issued by the Office of Defense Transportation to reduce the minimum-loading requirement on cantaloupes from 24,000 lb. to 22,400 lb.

General Permit 39-B, effective June 14, was issued by the Office of Defense Transportation to increase, from 36,000 lb. to 40,000 lb., the minimum-loading requirement on new fresh-harvested Irish potatoes originating at points in Arizona, California, and New Mexico.

Special Direction ODT 18A-1, Amendment 11, effective June 16, was issued by the Office of Defense Transportation to establish a minimum-loading requirement of 80,000 lb. on sugar in any type of container and irrespective of the size of the car used.

President William T. Faricy of the Association of American Railroads has recommended that the railroads extend for another six months the voluntary agreements "to effect further improvements in car handling," which were filed with the Interstate Commerce Commission early this year and resulted in cancellation by the commission of its proposed Service Order No. 778. That order, which never became effective, would have prescribed railroad operating regulations for car movement (see *Railway Age* of October 18, 1947, page 80). It was cancelled last January by Service Order No. 778-D, after its effective date had been postponed three times from the original November 1, 1947, and after the voluntary agreements, which Mr. Faricy would now have extended, had been filed.

The form of the agreements was outlined in the *Railway Age* of December 27, 1947, page 62; they carry a June 30 expiration date. Mr. Faricy's recommendation, embodied in a June 16 circular to A.A.R. member roads and all other signers of the car service and per diem agreement, is that they be continued without change until December 31. Meanwhile, he advised that the commission was agreeable to having its proposals for "some minor changes" in the agreements set aside for the time being.

Revised I.C.C. Service Order No. 87, which relates to free time allowed on tidewater coal and coal products at North Atlantic ports, will be modified by Amendment No. 1, effective July 1. The amendment will exempt from the order's provisions shipments of coke delivered to vessels in the Hampton Roads, Va., area, destined to points outside the Virginia capes and to points on the Albemarle, Pamlico, and Currituck sounds, and tributaries thereto; coke delivered to vessels in the Baltimore (Md.) harbor area for movement to points beyond the capes of Chesapeake bay; and delivered to vessels at Philadelphia, Pa., for movement to points beyond the capes of Delaware bay.

Revised I.C.C. Service Order No. 620-A, effective June 24, vacated Revised Service Order No. 620, which had prohibited lightweighing of cars placed at the ports for loading with import freight.

I.C.C. Service Order No. 95 has been modified by Amendment No. 9, which set back the expiration date from June 30 until December 31. The order makes the manager of the Refrigerator Car Section, Car Service Division, A.A.R., the commission's agent to control the distribution and use of refrigerator cars.

ABANDONMENTS

Application has been filed with the Interstate Commerce Commission by:

Atlantic Coast Line.—To abandon operation over the line of its lessor, the Tampa Southern, between Belspur, Fla., and Southfort, approximately 35 miles. Authority to abandon the line itself also is sought by the lessor.

FINANCIAL

Lehigh Valley Proposes Debt Adjustment Plan

The board of directors of the Lehigh Valley on June 23 approved a program for debt adjustment to be submitted to the Interstate Commerce Commission for approval under the terms of the "Mahaffie Act." After the board meeting, C. A. Major, president, said the plan would be filed shortly.

The Lehigh Valley, Mr. Major explained, faces bond maturities in the next eight years of approximately $45,000,000, of which $32,500,000 are due by October 1, 1951. "To meet this situation," he added, "we had to devise a plan which would not only solve the problems presented by the approaching maturities but also reduce the company's fixed charges and thereby strengthen its financial structure. Our plan would accomplish this without change in the obligations of the company either as to amounts of principal or of their security."

In summary, the following is planned: (1) The maturities of the principal of the various senior bonds will be extended and, in the case of the annuity bonds, which presently have no fixed maturity date, a stated maturity date of April 1, 1989, will be established.

The 6 per cent bonds will be made redeemable beginning at 120, declining one-half of 1 per cent each year. The 4½ per cent bonds will be redeemable at par. (2) The interest on the general consolidated mortgage bonds, due May 1, 2003, will be modified so that 25 per cent of the interest will remain fixed and 75 per cent become contingent on earnings, the contingent interest to be cumulative up to the amount of three years' interest. (3) The common stock will be changed from par value of $50 a share to no par value and the number of outstanding shares will be increased from approximately 1,210,000 to approximately 1,500,000 by the issuance of 4 shares of new stock in respect of each $1,000 general consolidated mortgage bond.

In addition, two sinking funds will be established to provide for the reduction of debt and, consequently, of fixed and contingent interest, in broad terms as follows: (a) A prior lien sinking fund, limited to $600,000, to be built up out of reductions in interest charges resulting from the retirement of prior lien debt after January 1, 1948; and (b) a general sinking fund which is to receive 50 per cent of the income remaining after the prior lien sinking fund and after fixed and contingent interest, plus an amount equal to the dividends paid. This is to continue until interest charges are reduced by $1,800,000, of which at least $600,000 must be in fixed interest charges. Thereafter, requirements for this fund will decrease.

Under the proposed plan, the maturities of subsidiary guaranteed bonds, approximately as follows, will be extended in accordance with the following schedule: Pennsylvania & New York Canal & Railroad bonds ($8,300,000), from April 1, 1949, to April 1, 1969; Lehigh Valley Rail Way bonds ($14,700,000), from July 1, 1950, to July 1, 1974; Lehigh Valley Terminal bonds ($9,600,000), from October 1, 1951, to October 1, 1951, to October 1, 1979; Lehigh Valley Harbor Terminal bonds ($9,800,000), from February 1, 1954, to February 1, 1984; and Lehigh & Lake Erie railroad bonds ($3,000,000), from March 1, 1957, to March 1, 1994.

Central of New Jersey.—*Adjustment Plan.*—This road announced last week that negotiations have been under way some time with the organized bondholder groups in its bankruptcy proceedings to work out an adjustment plan to be presented to the security holders and the Interstate Commerce Commission for approval under the so-called Mahaffie Act. At a meeting of the board of directors on June 17, the directors "approved the broad outlines of a proposed adjustment plan previously discussed with the bondholder groups, to be recommended to the various security holders for their consideration. This plan would provide in substance (a) a continuance of the present bonded debt of $48,731,000 undisturbed except to reduce the interest rate to 3¼ per cent; (b) payment of accrued interest due the bondholders to the extent that cash will be available . . . without impairing the working capital position of the company; (c) the issuance of non-interest-bearing certificates for the remainder, to be a first charge on income after fixed charges until they have been retired, except that provision will be made for additions and betterments to the extent required and for a capital fund; and (d) reduction of the par value of the present common stock to $50 per share and issuance to the bondholders, as compensation for their reduction in interest rate for the future, of a number of shares equal to that retained by the present stockholders, under provisions to be formulated."

It is expected that such a plan will be perfected and available for general distribution to security holders within the next two weeks.

Chicago & Eastern Illinois.—*New Director.*—Bryan S. Reid, general manager of the Socony-Vacuum Oil Company at Chicago, has been elected a member of this road's board of directors.

Chicago Great Western.—*New Director.*—Paul A. Nehring, president of the Nehring Electric Company of DeKalb, Ill., has been elected a director of this road.

Chicago Great Western.—*Stock.*—Examiner H. C. Howard has recommended in a proposed report that Division 4 of the Interstate Commerce Commission deny this road's application in the Finance Docket No. 16068 proceeding, wherein it seeks authority to issue not exceeding $7,322,080 of 4½ per cent income debentures and 73,221 shares of common stock of the par value of $50 a share. The applicant proposes to exchange those securities for not exceeding $18,305,200 of 5 per cent preferred stock, consisting of 366,104 shares of the par value of $50 a share, on the basis of $20 principal amount of 4⅛ per cent debentures and one-fifth of a share of common stock for each share of outstanding preferred stock. The application was filed with the commission after the C.G.W.'s board of directors had determined that the interests of the road and its security holders, as those of the public, would be served best by the "immediate and progressive" reduction and ultimate elimination of a "substantial portion" of its outstanding debt and by the improvement of its physical properties. To carry out that policy, it proposed to use the free cash and net earnings of the corporation and to omit for an indeterminate period the payment of dividends upon the preferred stock. Several of the road's security holders intervened, holding that the proposed debenture issue is unnecessary and, if accomplished, would be at the expense of the preferred stockholders.

The examiner said that, if all of the preferred stock were exchanged, the resulting capitalization based upon a January 31 statement would be $21,293,000 or 42 per cent stock and $29,517,900 or 58 per cent debt, an increase in debt of $3,625,426 over the maximum authorized in the reorganization of the property. On this basis, he said, the applicant's program of debt retirement if carried out would result on January 31, 1950, in a capitalization consisting of 48 per cent stock and 52 per cent debt. Those percentages, he added, would vary in proportion to the amount of preferred stock exchanged, and might, if only a small portion of the stock was exchanged, have little or no effect upon the relation of stock and debt to total capitalization.

He observed, however, that inasmuch as the relation between the stock and debt of the applicant was determined after exhaustive studies, and hearing both by the courts and commission, wherein the value of the property, its earning power and traffic were carefully considered, it does not appear that Division 4 should approve such a change in the applicant's capital structure unless the "most compelling necessity" is shown therefor. "Moreover, in general," he said, "the substitution of interest-bearing debt for stock can be authorized only when the most cogent reasons are presented therefor. No such reasons are presented by the applicant."

Among other things, the examiner also noted that those preferred stockholders who do not elect to accept the exchange would be entitled to a dividend on their stock. "However," he added, "their realization of such treatment is purely hypothetical in view of the fact that the primary purpose of the pending application is to avoid the payment of dividends."

Cincinnati, New Orleans & Texas Pacific.—*Dividend.*—This company has declared a dividend of $4 a share on the common stock, paid June 24 to stockholders of record on June 9. The two previous payments on this issue were $3 each, on December 18, 1947, and June 24, 1947.

Facility Terminal.—*Acquisition* — This new company has applied to the Interstate Commerce Commission for authority to acquire and operate a 3.1-mile switching track located on the property known as the Navy Industrial Reserve Facility, south of Kansas City, Mo. The plant is now leased by the United States Navy to the Facility Management Corporation, neither of which, according to the application, has the authority to operate as a common carrier. The line has a connection with the Missouri Pacific.

Macon, Dublin & Savannah.—*Bonds.*—This road has applied to the Interstate Commerce Commission for authority to extend from January 1, 1947, to January 1, 1972, the maturity date of $1,733,000 of its first mortgage 40-year

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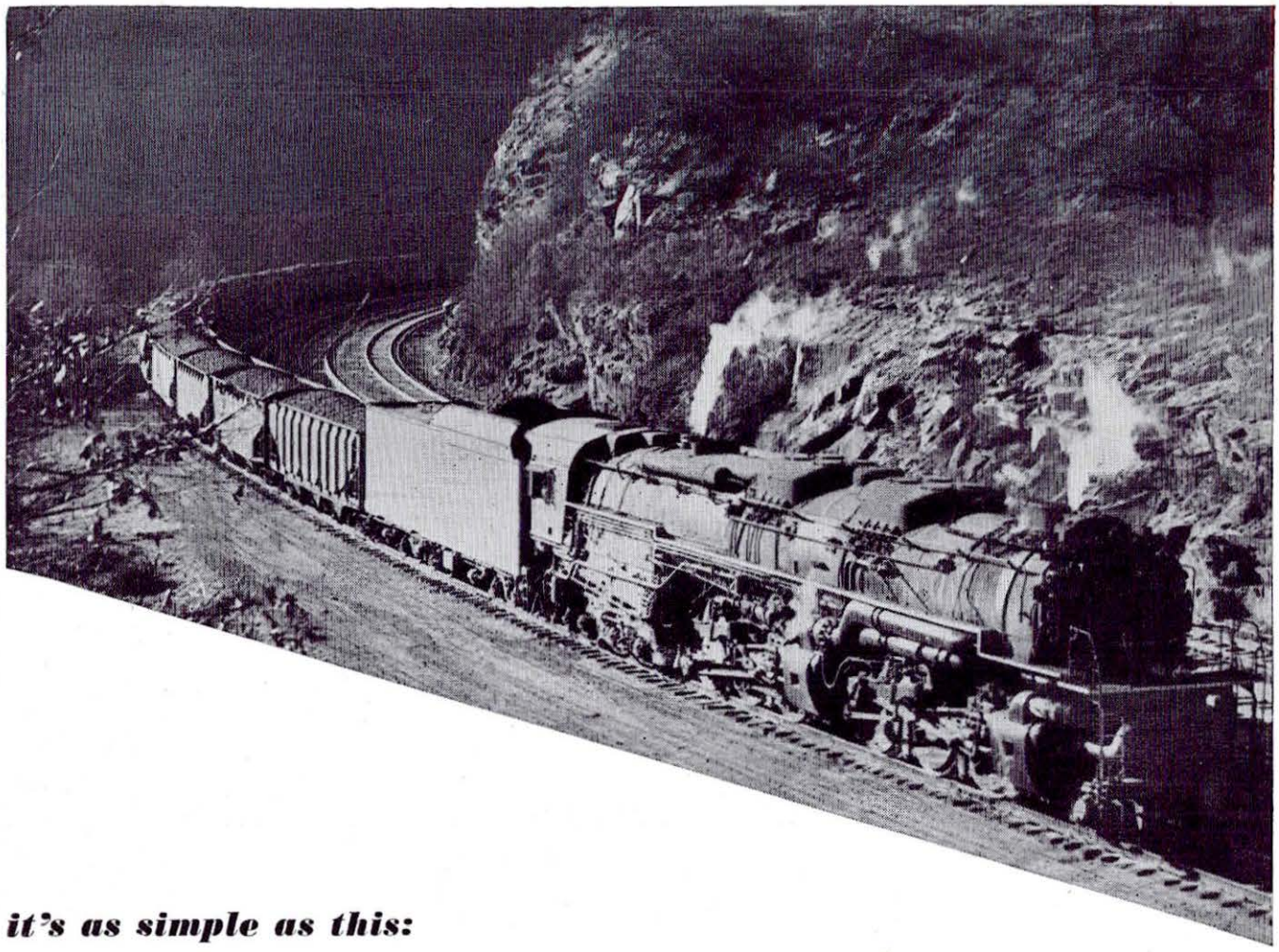

it's as simple as this:

MORE *with* FEWER

Last year, while some 2000 steam locomotives were being retired, the revenue ton-miles moved by steam reached 570 billion.

Here are two apparently opposing facts: The number of steam locomotives on Class I railroads hit a 30-year low. The number of ton-miles moved by these locomotives, on these roads, hit a peace-time high. Obviously the remaining locomotives averaged more time on the road. And, also obviously, the modern portion of that power—both new and rebuilt—raised that average.

It's as simple as that.

We built a substantial number of the modern locomotives that helped set that record. They have proved their ability, with planned scheduling, to stay on the road for 16 and 18 hours at a stretch—and to be ready for reassignment, with planned servicing facilities, in an hour or two. We are continuing to build such locomotives—progressively better, more reliable, and with even greater capacity for work.

LIMA HAMILTON CORPORATION

DIVISIONS: *Lima, Ohio* — Lima Locomotive Works Division; Lima Shovel and Crane Division. *Hamilton, Ohio* — Hooven, Owens, Rentschler Co.; Niles Tool Works Co.

PRINCIPAL PRODUCTS: Locomotives; Cranes and shovels; Niles heavy machine tools; Hamilton diesel and steam engines; Hamilton heavy metal stamping presses; Hamilton-Kruse automatic can-making machinery; Special heavy machinery; Heavy iron castings; Weldments.

five per cent bonds, of which amount $1,529,000 are outstanding in the hands of the public and the remainder in the applicant's treasury. The road told the commission that the proposed extension will avoid the expense and delay which would be incidental to proceedings for the foreclosure of the mortgage, or reorganization under section 77 of the Bankruptcy Act. The extension, it said, would enable a fair and equitable adjustment of the rights of the bondholders to be made.

Point Comfort & Northern.—*Control.*—The Aluminum Company of America has applied to the Interstate Commerce Commission for authority to acquire, through ownership of stock, control of this road, a new company. As reported in *Railway Age* of June 5, page 88, the P. C. & N. seeks authority to issue 5,000 shares of common stock of $100 par value in connection with the financing of its proposed 12-mile line from a point near Point Comfort Tex., to a connection with the St. Louis, Brownsville & Mexico at Lolita. The line will serve a $20,000,000 Aluminum Company plant to be built at Point Comfort.

Tennessee.—*Bonds.*—This road's application under section 20b of the Interstate Commerce Act for authority to extend from August 2 to August 2, 1968, the maturity date of its outstanding 6 per cent 30-year income debenture bonds has been set for hearing on June 28 at the Washington, D. C., offices of the Interstate Commerce Commission. Examiner C. A. Bernhard will preside. Although the commission already has authorized the road to extend the bonds in a section 20a proceeding, as reported in *Railway Age* of April 10, page 75, the applicant said it was reapplying for similar authority under section 20b—the recently enacted "Mahaffie Act"—because holders of about 3 per cent of the bonds either are unknown or have failed to consent to the extension plan (see *Railway Age* of June 5, page 86). Approximately $917,200 of the bonds are outstanding.

New Securities

Applications have been filed with the Interstate Commerce Commission by:

Chicago, Milwaukee, St. Paul & Pacific.—To assume liability for $3,820,000 of series EE equipment trust certificates, the proceeds of which will be applied toward the purchase of the following equipment:

	Description and Builder	Estimated Unit Cost
6	1,000-hp. Diesel-electric switching locomotives (Baldwin Locomotive Works)	$ 96,000
10	10-roomette, 6-bedroom sleeping cars (Pullman-Standard Car Manufacturing Co.)	108,716
6	8-bedroom, observation sleeping cars (Pullman-Standard)	129,390
8	8-duplex, 6-roomette, 4-bedroom sleeping cars (Pullman-Standard)	114,837
4	16-duplex roomette, 4-bedroom sleeping cars (Pullman-Standard)	125,168
250	70-ton all-steel covered hopper cars (General American Transportation Corp.)	4,992

The certificates, to be sold on the basis of competitive bidding, would be dated July 1 and would mature in 20 semi-annual installments of $191,000 each, starting January 1, 1949.

Baltimore & Ohio.—To assume liability for $5,060,000 of series Z equipment trust certificates, the proceeds of which will be applied toward the purchase of two streamlined, lightweight passenger trains, each consisting of eight cars, and 974 70-ton open-top steel hopper cars.

The passenger equipment, to be acquired from the Pullman-Standard Car Manufacturing Company, at an estimated total cost of $1,950,000, includes eight coaches, two baggage-dormitory cars, two "astradome" cars, two dining cars and two combination tavern-observation cars. Of the freight cars, 589 will be acquired from the Pressed Steel Car Company, at an estimated unit cost of $4,471, and 385 from the Bethlehem Steel Company, at an estimated unit cost of $4,530. The certificates would be dated July 1 and would mature in 10 annual installments of $506,000, starting July 1, 1949.

Wheeling & Lake Erie.—To assume liability for $3,200,000 of series P equipment trust certificates, the proceeds of which will be applied toward the purchase of 1,000 all-steel self-clearing 70-ton hopper cars, at an estimated unit cost of $4,000, from the Ralston Steel Car Company. The certificates would be dated July 15 and would mature semi-annually, starting January 15, 1949.

Louisville & Nashville.—To issue and sell $30,000,000 of series H bonds under its first and refunding mortgage, the proposed issue to replace a like amount of series C 4½ per cent bonds, now held in the applicant's treasury. Proceeds of the new issue, to be sold on the basis of competitive bidding, with no interest rate to exceed 3¾ per cent per year, would be applied toward increasing the applicant's working capital and to strengthen its treasury position "as insurance against unfavorable events and contingencies which may arise in the near future." The new issue would mature April 1, 2003.

Louisiana & Arkansas.—To assume liability for $1,760,000 of series C equipment trust certificates, the proceeds of which will be applied toward the purchase of equipment estimated to cost $2,200,296.

The equipment includes eight sleeping cars, at an estimated total cost of $1,043,000, and two Diesel-electric freight locomotives, consisting of four 1,500-hp. units (two A and two B) each, at a total estimated cost of $1,157,296. The sleeping cars will be acquired from the Pullman-Standard Car Manufacturing Company and the locomotives from the Electro-Motive Division of the General Motors Corporation. The certificates would be dated July 1 and would mature in 20 semi-annual installments of $88,000, starting January 1, 1949.

Division 4 of the Interstate Commerce Commission has **authorized:**

Chicago, Milwaukee, St. Paul & Pacific.—To assume liability for $7,120,000 of series DD equipment trust certificates, the proceeds of which will be applied toward the purchase of equipment estimated to cost $9,514,365, as outlined in *Railway Age* of May 29, page 62.

The certificates will be dated June 1 and will mature in 20 semi-annual installments of $356,000, starting December 1. The report also approves a selling price of 99.2265 with a 2 per cent interest rate, the bid of Halsey, Stuart & Co., and associates, which had been accepted subject to commission approval, and on which basis the average annual cost will be approximately 2.15 per cent.

Pennsylvania.—To assume liability for $11,055,000 of series U equipment trust certificates, part of a proposed issue of $31,710,000 of series U certificates, the entire proceeds of which will be applied toward the purchase of equipment estimated to cost $39,640,500, as described in *Railway Age* of June 19, page 61, and May 29, page 60.

The present issue will be dated July 1 and will mature in 15 annual installments, starting July 1, 1949. The report also approves a selling price of 99.05 with a 2⅜ per cent interest rate, the bid of Harriman Ripley & Co., and Lehman Brothers and associate, which had been accepted subject to commission approval, and on which basis the average annual cost will be approximately 2.52 per cent.

Average Prices Stocks and Bonds

	June 22	Last week	Last year
Average price of 20 representative railway stocks	54.71	54.61	45.56
Average price of 20 representative railway bonds	91.03	90.35	88.20

Dividends Declared

Canadian Pacific.—4% non-cum. preferred 2%, semi-annually, payable August 2 to holders of record July 1.

East Pennsylvania.—$1.50, semi-annually, payable July 20 to holders of record July 1.

Northern Central.—$2.00, semi-annually, payable July 15 to holders of record June 30.

Pittsfield & North Adams.—$2.50, semi-annually, payable July 1 to holders of record June 18.

Savannah & Atlanta.—5% preferred, $1.25, quarterly, payable July 1 to holders of record June 16.

Stony Brook.—$2.50, semi-annually, payable July 6 to holders of record June 30.

Tunnel of St. Louis.—$3.00, semi-annually, payable July 1 to holders of record June 15.

CONSTRUCTION

Southern.—This road has awarded to the Johnson & Johnson Construction Co., Rome, Ga., a contract for the substructure and approach grading in a project involving the replacing of a timber trestle with a steel bridge near Popes Ferry, Ga. The estimated cost of the contract is $39,000. The following projects have been authorized and the probable costs are shown in parentheses: Installing a fender system at draw span, Congaree river bridge, Moy, S. C.

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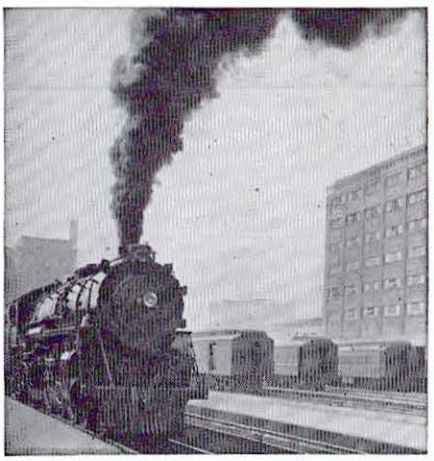
Overfire Jets*

Eliminate Smoke!



JETS OFF

JETS ON

SMOKE GONE

*

Overfire air jets with mufflers, as developed and designed by Bituminous Coal Research, Inc., are now being manufactured and sold by the Franklin Railway Supply Company.

These jets are a result of several years' research by B.C.R. in smoke abatement methods. They use steam to induce air into the sides of the locomotive fire-box, above the fire, so as to burn the volatiles from the coal with little or no smoke.

Quotations on Type A or Type B jets will gladly be supplied, together with recommendations on installation in conformance with B.C.R. specifications.

FRANKLIN RAILWAY SUPPLY COMPANY

NEW YORK • CHICAGO • MONTREAL

STEAM DISTRIBUTION SYSTEM • BOOSTER • RADIAL BUFFER • COMPENSATOR AND SNUBBER • POWER REVERSE GEARS
AUTOMATIC FIRE DOORS • DRIVING BOX LUBRICATORS • STEAM GRATE SHAKERS • FLEXIBLE JOINTS • CAR CONNECTION

($25,000); constructing an underpass, Clinton, Tenn. ($118,580); installing a used turntable, Hamburg, S. C. ($42,500); constructing tracks for Furman University Foundation, Paris, S. C. ($57,560); acquiring and extending track for industrial switching spur, Greensboro, N. C. ($22,830); and constructing passing, storage and tail tracks aggregating 4,088 ft., Rogerslacy, Miss. ($24,800).

Northern Pacific.—The Interstate Commerce Commission has permitted the Chicago, Milwaukee, St. Paul & Pacific to intervene in the proceeding wherein this company seeks authority to construct a line from Mitchell Spur, Wash., to Moses Lake, 4 miles, as reported in *Railway Age* of May 29, page 59. The intervenor, in opposing the application, said that the service furnished by it to the territory involved is adequate and that the granting of the application would mean the "wasteful duplication" of facilities.

St. Louis-San Francisco.—Division 4 of the Interstate Commerce Commission has authorized this company to construct a line extending from a point near Hackett, Ark., to a new tipple of the Quality Excelsior Coal Company, 1.2 miles. At the same time, the commission dismissed, for want of jurisdiction, an application of the intervening Midland Valley, which sought commission authority to construct a 0.5-mile branch from its main line near Excelsior to the new tipple.

According to the report, the track proposed by the Midland would be a spur track "for which prior approval by us is not necessary." The commission held that the situation with respect to the Frisco is "different." "The line it proposes to build traverses other coal lands before reaching the property of the coal company," it said. "Conceivably other mines in the territory tributary to the Frisco's extension may be developed in the future, particularly if rail transportation service is made available therein. The present record, however, does not indicate any such development is contemplated at this time."

The commission also observed that although mining over the years has resulted in a gradual underground progression toward the Frisco so that the coal to be mined lies as close to that road as to the M.V., any tonnage originated on the extension will nevertheless represent new business from a territory not now served by the Frisco. "Nor would the construction of a spur by the Midland Valley prevent us from permitting the Frisco to enter the field," it said. "Carriers have no legal right to exclusive occupancy of a territory."

The commission also found that the record demonstrates the need for service by the Frisco if the coal company is to compete in the St. Louis, Mo., market with other operators and other fields.

RAILWAY OFFICERS

EXECUTIVE

D. L. Keiser, whose election as president of the Texas Mexican, with headquarters at San Antonio, Tex., was reported in *Railway Age* of May 22, was born on December 10, 1876, at Boonville, Mo. Mr. Keiser attended public schools in Rocheport, Mo., and Boonville, and was graduated by the Speckeen Academy in the latter city in 1896. He was graduated by the Bliss Electrical School in Washington, D. C., in 1900, and immediately thereafter entered the service of the St. Louis Street Railway Company. In 1901 he joined the Westinghouse Electric & Manufacturing Co., at East Pittsburgh, Pa., and subsequently spent two years as a special apprentice in the company's shops. He later was engaged in various electrical construction projects while associated with Westinghouse,

D. L. Keiser

holding posts as engineer-in-charge of construction and operation of the Derry-Latrobe Electric Company and of the electrification and operation of the Chicago, Lake Shore & South Bend (now Chicago, South Shore & South Bend). He served for a time as manager of Westinghouse's railway and lighting department at St. Louis. In 1915 he became chief engineer for the public utility company later known as the Central Power & Light Co. Mr. Keiser also spent a number of years as president of a public utilities company in Mexico, which position he held until he joined the Texas Mexican. He became vice-president of the road—with the full responsibility for converting its motive power from steam to Diesel-electric—and was serving in that post at the time of his recent election as its president.

Fred C. Berghaus, whose promotion to vice-president—executive assistant of the Chicago, Indianapolis & Louisville, at Chicago, was reported in *Railway Age* of May 29, was born on October 16, 1889, at Philadelphia, Pa., and attended public schools and business college in Chicago. Mr. Berghaus began his railroad career with the Chicago & North Western in 1907, and later was associated successively with the Chicago, Rock Island & Pacific and the

Fred C. Berghaus

Illinois Central. He joined the Monon at Chicago in March, 1912. Mr. Berghaus has served during his career as chief clerk and traveling auditor, accounting department; chief clerk, traffic department; manager mail and express traffic; assistant to vice-president; freight claim agent; assistant to general manager; and assistant to president. He was serving in the latter position with the Monon at the time of his recent appointment.

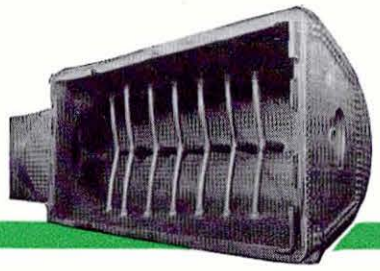
Gordon D. Briggs, assistant general counsel of the Bangor & Aroostook at Bangor, Me., has been appointed also assistant to the president for finance. Mr. Briggs, who for the past several months has been active in the proposed

Gordon D. Briggs

refinancing of the road, was born at Pittsfield, Me., and was graduated from Bowdoin College in 1933, and from Harvard Law School in 1936. He became associated with the Bangor Hydro-Electric Company and subsidiaries,

News Department continued on next left-hand page

FOR EVERY TYPE OF LOCOMOTIVE BOILER



DESIGNED for any steam locomotive, whether coal or oil burning, Security Circulators are now in use in twenty-five different types, ranging from 4-4-2s to 4-8-8-4s. Installations run from three to nine Circulators each, according to the size of the locomotive.

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Bangor, as assistant counsel in 1936 and served as general counsel from 1940 to 1942. He also served as assistant counsel for the Eastern Corporation, South Brewer, Me., from 1936 to 1941, joining the Bangor & Aroostook as assistant general counsel on February 1, 1946, which position he will retain in addition to his duties as assistant to the president for finance. During World War II, Mr. Briggs volunteered for U. S. Army service as a private in October, 1942; attended Engineer Officers Candidate School, where he was commissioned second lieutenant in May, 1943; served in the European theater from January, 1944, to October, 1945, on the staff of the 83rd Infantry division, and was discharged from service on December 14, 1945, with the rank of captain. He was a member of the House of Representatives in the Maine legislature in 1941-42.

Walter S. Franklin, whose appointment as executive vice-president of the Pennsylvania at Philadelphia, Pa., was reported in the *Railway Age* of June 19, was born at Ashland, Baltimore county, Md., and was graduated from Harvard University. Mr. Franklin began work for the Pennsylvania at the Dock street freight station in Philadelphia in 1906. After a varied experience in the road's traffic department, he served with the Maryland Field Artillery in 1916 during the trouble with Mexico, and as lieutenant colonel in the Army Transportation Corps in World War I. After the armistice, he directed the return of troops from both England and France and was awarded the British Distinguished Service Order, French Legion

Walter S. Franklin

of Honor and the American Distinguished Service Medal. Following further service with the P.R.R, as assistant general freight agent at Philadelphia, general agent at Detroit, Mich, and general superintendent of the Northwestern division at Chicago, Mr. Franklin became president of the Detroit, Toledo & Ironton in July, 1929. Two years later he was appointed assistant to the vice-president in charge of operation of the P.R.R. at Philadelphia and shortly thereafter became president of the Wabash. Mr Franklin returned to the P.R.R. in October, 1933, as vice-president in charge of traffic, which position he held until his recent appointment as executive vice-president, in which capacity he will assist the president in the general supervision and administration of the company's affairs.

FINANCIAL LEGAL and ACCOUNTING

James P. Rembert, assistant tax commissioner of the Southern Pacific Lines in Texas and Louisiana, at Houston, Tex., has been promoted to senior tax commissioner at that point. **Charles A. Rabson,** tax agent, has been advanced to assistant tax commissioner.

J. E. Goggin, assistant general attorney of the Chicago, Milwaukee, St. Paul & Pacific, has been appointed assistant general solicitor at Chicago, succeeding **L. H. Dugan,** whose election as vice-president at Seattle was reported in *Railway Age* of June 19. **R. K. Merrill,** chief clerk in the law department, has been appointed to succeed Mr. Goggin.

Charles Cook Howell, general counsel of the Atlantic Coast Line at Wilmington, N. C., has been appointed also general counsel of the Charleston & Western Carolina.

OPERATING

Samuel J. Massey, Jr., whose promotion to superintendent of the New Orleans Terminal division of the Illinois Central, with headquarters at New Orleans, La., was reported in *Railway Age* of May 29, 1907, was born on August 29, 1907, at Philadelphia, Miss. He began his railroad career with the I.C. in 1926 as a clerk in the freight office at Green-

Samuel J. Massey, Jr.

ville, Miss., and subsequently held various clerical positions at different points on the railroad. He was appointed assistant trainmaster at Vicksburg, Miss., in 1940, and in the latter part of that year he became acting trainmaster at Baton Rouge, La. Mr. Massey was appointed trainmaster at Vicksburg in 1941, transferring to Louisville, Ky., in 1944 and to McComb, Miss., in 1947. He was serving at McComb at the time of his recent advancement.

W. S. Hunter, acting superintendent of the Chicago Great Western, with headquarters at Des Moines, Iowa, has been appointed superintendent at that point.

Andrew F. McIntyre, general manager of the New York zone of the Pennsylvania at New York, has been promoted to chief of freight transportation of the system, with headquarters at Philadelphia, Pa., effective July 1, succeeding **J. C. Rill,** who has resigned to accept the presidency of the Fruit Growers Express Company, with offices in Washington, D. C. **J. Benton Jones,** general superintendent of the Pennsylvania's Eastern Ohio division at Pittsburgh, Pa., has been promoted to general manager at New York. **J. D. Fuchs,** superintendent of the Eastern division

Andrew F. McIntyre

at Pittsburgh, takes over Mr. Jones' position as general superintendent there.

Mr. McIntyre was born at Canandaigua, N. Y., in 1892 and began his railroad career at the age of 13 by working after school hours as a fruit handler on the old Northern Central (now part of the Pennsylvania). He subsequently studied telegraphy and in 1909 became an operator on the Elmira division of the P.R.R., advancing later through various supervisory positions until 1935, when he was appointed superintendent of freight transportation of the Eastern region at Philadelphia. In 1940 he became superintendent of passenger transportation of the Eastern region, which office he held at the time of entering military service on January 20, 1942, as a lieutenant colonel in the Reserve Corps of Engineers. He was rapidly promoted to colonel and brigadier general in the Army Transportation Corps. Serving first in the Transportation Branch of Supply, on the War Department General Staff;

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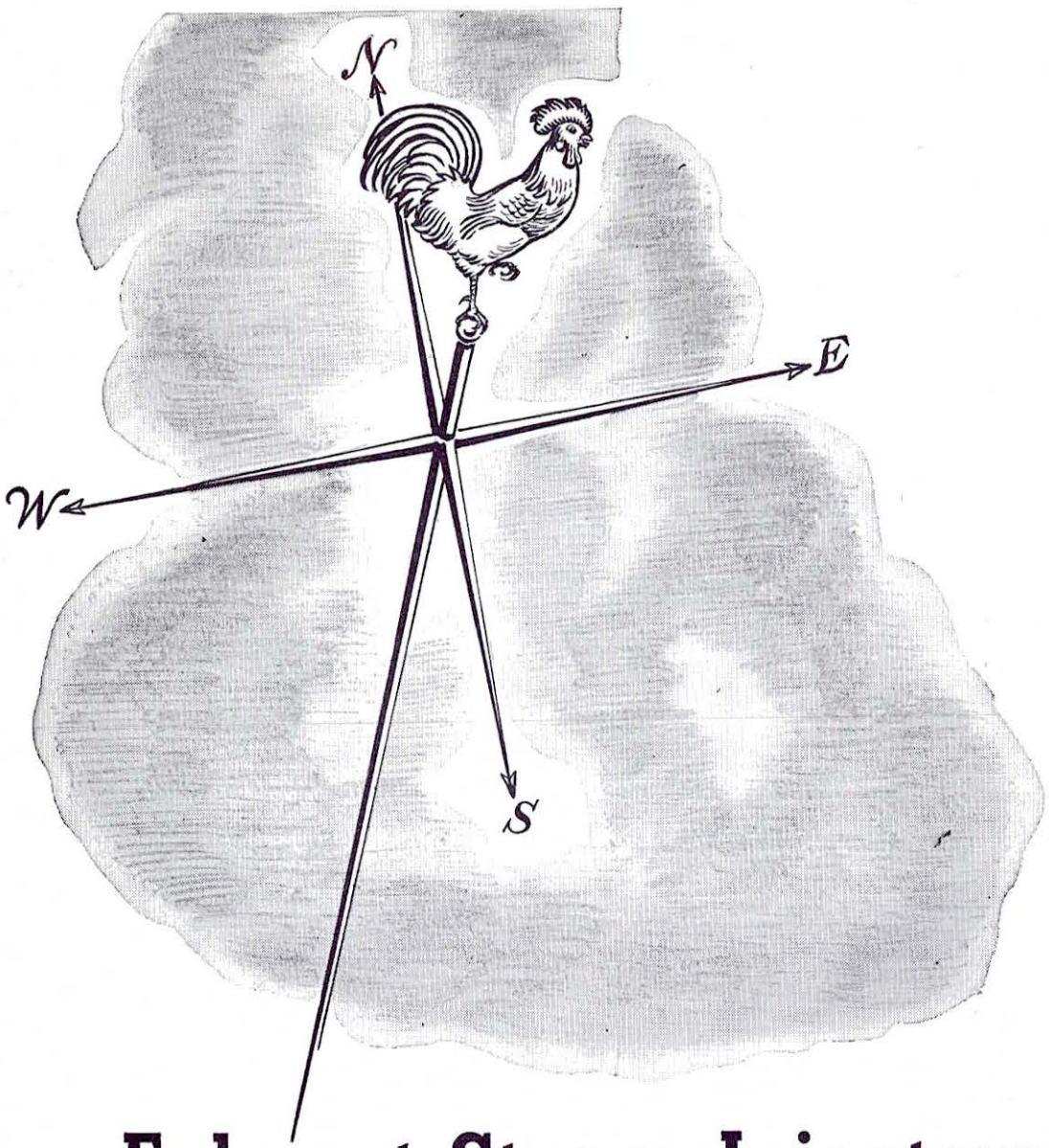

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then as deputy director of operations, Transportation Corps; and finally from November, 1943, until his return to inactive duty on November 13, 1945, as chief of the Rail division on the staff of the Army's Chief of Transportation. Mr. McIntyre received the Distinguished Service Medal for his part in supervising the movement and transshipment of 11,000,000 tons of ammunition and explosives without mishap and for other important contributions to the success of the Military Railway Service in various theaters of operation. Upon returning to the P.R.R. on February 1, 1946, Mr. McIntyre became general superintendent of the Southwestern division at Indianapolis, Ind., which position he held until February 1, 1947, when he became general manager at New York. Mr. McIntyre was recalled to active duty on May 10 as brigadier general in the Army Transportation Corps and is now serving as an assistant to Major General Edmond H. Leavey, chief of transportation of the Army, in Washington, D. C., in connection with the latter's administration of the railroad industry under Executive Order.

Mr. Jones was born at Danville, Ill., on March 22, 1905, and was graduated from the University of Illinois in 1926 with a bachelor of science degree in civil engineering. He entered railroad service in 1926 with the Chicago & Eastern Illinois as a rodman at Danville, and has been with the Pennsylvania since April, 1927, when he became an assistant on the engineering corps of the Logansport division. After gaining experience on various parts of the system, he became superintendent of the Indianapolis division in 1940, transferring to the Cleveland division in 1941 and to the New York division at Jersey City, N. J., on February 16, 1942. During the war years, Mr. Jones supervised the movement of troops between the Port of New York and the installations at Fort Dix, N J., Fort Monmouth, and Camp Kilmer, in addition to his other duties. Mr. Jones became general superintendent of the Eastern Ohio division at Pittsburgh on March 15, 1946, which position he held until his recent promotion.

J. Benton Jones

Mr. Fuchs was born at Jersey City, N. J., on July 10, 1898, and attended grammar and high schools in that city and Drake Business College. He entered the service of the Pennsylvania as a clerk at Jersey City on March 16, 1917, and after serving several years in clerical positions, became a passenger brakeman. On November 1, 1929, he was appointed assistant yardmaster on the New York division at Sunnyside yard, remaining in that position until November 1, 1933, when he was appointed assistant passenger trainmaster of the Long Island. During the two years of the New York World's Fair, Mr. Fuchs had charge of coordinating extra and regular passenger train service operated by the Long Island. He subsequently served as assistant trainmaster in the Eastern and Central regions during 1940 and 1941. On July 11, 1942, he was appointed trainmaster of the Chicago Terminal division and on May 16, 1944, he became superintendent of the Indianapolis division, transferring to the Columbus division on October 1, 1945, and to the Eastern division on February 1, 1947, holding the latter position at the time of his appointment as general superintendent of the Eastern Ohio division at Pittsburgh, effective July 1.

J. D. Fuchs

TRAFFIC

Denis Headley, assistant chief of the tariff bureau of the Canadian National, has been promoted to chief of the tariff bureau, with headquarters at Montreal, Que., having jurisdiction over the Central and Atlantic regions.

G. D. Wertz has been appointed assistant general freight agent—divisions of the Illinois Terminal, with headquarters at St. Louis, Mo.

Ray Paschall, assistant general passenger agent of the Atlantic Coast Line at Orlando, Fla., has been appointed assistant to passenger traffic manager at Jacksonville, Fla. **Leonard A. Wall** and **William M. Sykes,** traveling passenger agents, have been appointed district passenger agents at Miami, Fla., and Atlanta, Ga., respectively. **John E. McDonald,** passenger agent at Norfolk, Va., has been appointed district passenger agent at Orlando.

Charles T. Hopkins has been appointed division freight agent of the Central of Georgia, with headquarters at Birmingham, Ala., succeeding **S. L. Peeples,** deceased.

Edward R. Lewis, whose promotion to traffic manager of the Fort Dodge, Des Moines & Southern at Boone, Iowa, was reported in *Railway Age* of June 19, was born on April 19, 1903, at Michigan City, Ind He received his higher education at the La Salle Extension University and the Transportation Law Institute, and in 1924 entered the employ of the Pullman Car & Manufacturing Corp. (now Pullman-Standard Car Manufacturing Company) as traffic clerk in the audit department at Michigan City. Mr. Lewis began railway service in 1927 with the Chicago South Shore & South Bend as freight accounting clerk, advancing through positions as freight rate clerk, overcharge claim clerk, freight statistician and rate and division clerk. He also served as chief clerk to auditor of freight revenue and as chief rate and division clerk with the same road. He joined the Fort Dodge in 1944 as assistant general freight agent at Chicago, and was advanced in January, 1947, to general freight agent, which post he held at the time of his recent appointment.

Edward R. Lewis

C. M. Byers, whose promotion to assistant freight traffic manager of the Chesapeake & Ohio at Chicago, was reported in *Railway Age* of May 22, was born on May 27, 1897, at Walston, Pa., and attended the Carnegie Institute of Technology at Pittsburgh, Pa. Mr. Byers began his railroad career with the Pittsburgh & Lake Erie in 1916, and, on November 1, 1926, he joined the

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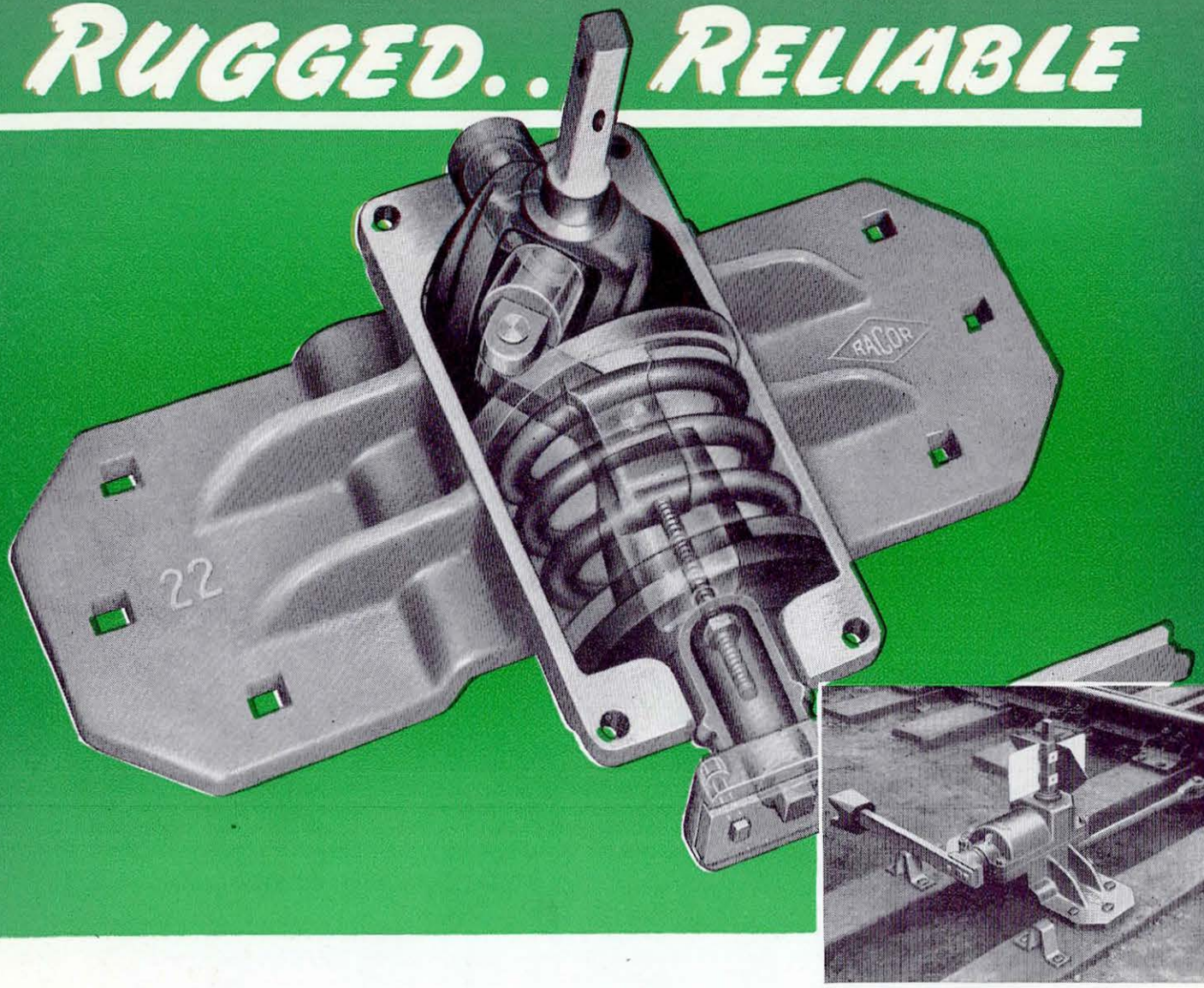

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C. & O. as soliciting freight agent at Chicago. He became commercial agent at the latter point in 1928, was transferred to Lynchburg, Va., in 1939 and went to St. Louis, Mo., in 1942 as general agent. On March 1, 1947, he was advanced to assistant general freight agent at Columbus, Ohio, which post he held at the time of his new appointment.

C. M. Byers

O. C. Grimshaw, whose appointment as assistant to the general traffic manager of the Pennsylvania at Philadelphia, Pa., was reported in the *Railway Age* of June 19, was born at Callao, Macon county, Mo., on September 26, 1900. After completing his education in high school and business school and in special work in transportation at LaSalle Extension University, Mr. Grimshaw began work for the Pennsylvania in October, 1922, in the freight traffic department at Chicago. After successive promotions, involving service at Pittsburgh, Pa., he became commerce agent at Chicago in 1937, and chief clerk to the freight traffic manager in February, 1939. In 1942 he was appointed district freight agent at Chicago, transferring to Altoona, Pa., in June, 1943. Three years later he was advanced to assistant general freight agent at Philadelphia, which position he held at the time of his recent promotion to assistant to the general traffic manager.

O. C. Grimshaw

MECHANICAL

John W. Horine, Jr., whose appointment as assistant superintendent of motive power of the Pennsylvania at Harrisburg, Pa., was reported in the *Railway Age* of June 19, was born at Charleston, S. C., and was graduated from Lehigh University. Mr. Horine has been employed by the Pennsylvania in various motive-power department assignments since 1922. He served successively as general electrician at Philadelphia, Pa., and supervisor of Diesel-electric locomotives at Harrisburg, holding the latter position at the time of his recent appointment as assistant superintendent of motive power at Harrisburg.

J. S. Bell, master mechanic on special duty in the office of the chief of motive power of the Pennsylvania, has been appointed superintendent of motive power of the Eastern Ohio division at Pittsburgh, Pa., **W. C. Fleck,** master mechanic of the Chicago Terminal and Logansport divisions at Chicago, has been transferred to the Philadelphia Terminal and Atlantic divisions at Philadelphia. **E. C. Hanley,** assistant master mechanic of the Columbus, Cincinnati and Toledo divisions, has been appointed master mechanic of the Chicago Terminal and Logansport divisions at Chicago. **P. G. Jamison,** engine-house foreman at York, Pa., has been appointed assistant master mechanic of the Columbus, Cincinnati and Toledo divisions.

P. L. Savage has been appointed assistant shop superintendent of the Huntington shops of the Chesapeake & Ohio at Huntington, W. Va., succeeding **W. C. Wilson,** who has been assigned to other duties.

Clarence A. Frick, general foreman of the Eastern lines of the Southern at Alexandria, Va., has been appointed master mechanic at Columbia, S. C., succeeding **Glen R. James.**

ENGINEERING and SIGNALING

T. W. Hays, assistant general signal engineer of the Union Pacific, has been promoted to general signal engineer at Omaha, Neb., succeeding **Leon D. Dickinson,** whose retirement was reported in *Railway Age* of June 19. Mr. Dickinson entered the service of the U.P. in August, 1906, as a draftsman in the signal department at Omaha. He later served as chief draftsman and office engineer and, in June, 1942, was made assistant general signal engineer. He was promoted to general signal engineer on December 1, 1942.

Thomas F. Jones, whose appointment as valuation engineer and tax commissioner of the Southern Pacific Lines in Texas & Louisiana, at Houston, Tex., was reported in *Railway Age* of June 12, was born at Eudora, Ga., on February 14, 1892. Mr. Jones was graduated by the University of Georgia with the degree of Bachelor of Science in civil engineering in June, 1913, and shortly thereafter joined the S. P. as a draftsman. He was advanced to engineer, construction department, in 1917, and later served as pilot engineer, chief draftsman and office engineer in the valuation department. On January 16, 1926, Mr. Jones was appointed assistant valuation engineer, which post he held until his recent appointment.

Thomas F. Jones

SPECIAL

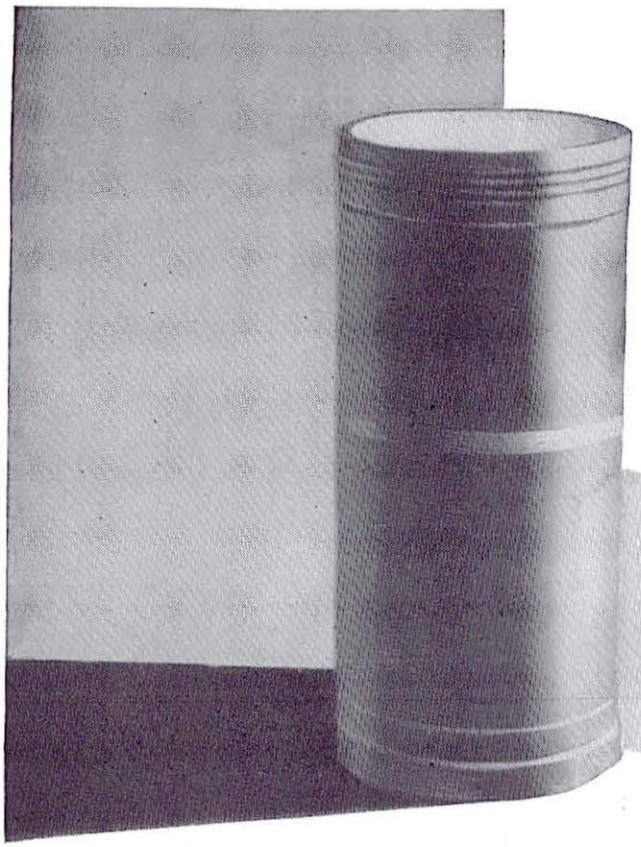
W. F. Saunders has been appointed personnel representative of the Eastern region of the Canadian Pacific, with headquarters at Toronto, Ont.

OBITUARY

Chester W. Y. Currie, editor of the Central Headlight, publication of the New York Central system, and for many years publicity manager of that system, died of a heart attack in New York on June 19, at the age of 64. Mr. Currie was born in Cambridge, Mass., on February 18, 1884, and educated at Harvard College. He became news editor of the Boston Traveler in 1910 and later was New England editor of the Associated Press. In 1913 he became editor of Munsey's Magazine at New York and later was city editor of the New York Press and held editorial positions on the New York Sun, New York American and the Evening World. In September, 1919, Mr. Currie entered the service of the New York Central as associate editor of the New York Central Lines Magazine, later becoming editor. He was appointed publicity manager in 1928, which position he held until last July.

Table of Freight Operating Statistics appears on next left-hand page

HSGI DIESEL LINERS



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Valve Packing Rings	Light Weight Valves	Sectional Packing)
Valve Bull Rings	Cylinder Liners and Pistons	Cylinder Snap Rings
	for Diesel Service	Valve Rings, All Shapes

Freight Operating Statistics of Large Steam Railways—Selected

Region	Road and year	Miles of road operated	Locomotive miles: Train-miles	Locomotive miles: Principal and helper	Locomotive miles: Light	Car miles: Loaded (*thousands*)	Car miles: Per cent loaded	Ton-miles (*thousands*): Gross excl. locos. & tenders	Ton-miles (*thousands*): Net rev. and non-rev.	Road locos. on line: Serviceable: Unstored	Road locos. on line: Serviceable: Stored	Road locos. on line: B.O.	Road locos. on line: Per cent B.O.
New Eng. Region	Boston & Albany 1948	362	138,166	147,497	19,219	3,269	60.9	211,696	82,299	69	14	22	21.0
	1947	362	150,789	165,595	234,445	3,471	67.7	209,529	85,259	61	5	23	25.8
	Boston & Maine 1948	1,746	352,815	364,901	16,479	13,102	67.7	832,068	349,762	107	..	8	7.0
	1947	1,750	343,126	356,782	16,040	13,377	71.6	820,402	350,403	101	16	14	10.7
	N. Y., N. H. & Htfd. 1948	1,815	380,868	690,533	51,222	14,878	69.4	903,898	400,479	207	..	28	15.7
	1947	1,815	400,295	549,604	45,385	15,705	73.3	901,041	396,690	194	5	42	20.5
Great Lakes Region	Delaware & Hudson 1948	794	312,729	381,403	39,288	13,637	66.5	984,639	521,311	134	23	29	15.6
	1947	794	320,578	386,374	40,520	14,322	70.7	1,013,522	554,878	123	33	30	16.1
	Del., Lack. & Western 1948	970	361,075	407,162	46,383	14,565	66.7	983,820	443,432	121	6	20	13.6
	1947	971	341,555	391,476	46,165	14,634	71.4	966,069	449,660	108	7	58	33.5
	Erie 1948	2,229	743,683	780,438	67,837	37,169	64.6	2,438,811	1,019,168	256	21	93	25.1
	1947	2,229	824,269	881,531	73,775	40,704	69.7	2,561,360	1,118,162	277	19	88	22.9
	Grand Trunk Western 1948	972	298,223	305,804	2,899	9,567	67.2	609,100	257,390	64	..	10	13.5
	1947	972	288,448	304,469	3,442	10,145	72.5	622,206	277,963	68	..	9	11.7
	Lehigh Valley 1948	1,239	333,077	369,209	51,238	13,887	65.6	955,170	450,310	100	4	46	30.7
	1947	1,241	318,834	353,575	57,543	14,415	70.2	956,327	466,172	107	12	44	27.0
	New York Central 1948	10,351	3,263,557	3,486,239	228,976	114,224	61.1	7,963,053	3,555,470	1,096	7	294	21.0
	1947	10,338	3,365,618	3,624,757	246,319	128,188	65.0	8,737,016	4,092,269	1,046	4	334	24.1
	New York, Chic. & St. L. 1948	1,656	702,714	712,507	9,359	27,041	65.3	1,770,397	760,921	154	1	14	8.3
	1947	1,656	724,367	729,624	10,257	28,502	70.2	1,835,146	829,990	147	..	13	8.1
	Pitts. & Lake Erie 1948	223	98,046	100,167	.....	3,603	63.8	305,375	177,042	38	2	10	20.0
	1947	223	103,295	104,831	30	3,930	64.2	326,926	187,803	31	..	17	35.4
	Wabash 1948	2,381	641,390	655,501	15,359	23,127	70.7	1,461,562	636,421	163	9	31	15.3
	1947	2,381	682,924	697,933	15,320	25,694	74.1	1,587,862	722,579	163	3	40	19.4
Central Eastern Region	Baltimore & Ohio 1948	6,076	1,978,641	2,449,833	257,440	66,928	64.9	4,777,949	2,315,232	804	8	326	28.6
	1947	6,103	2,172,213	2,708,534	313,975	75,004	65.5	5,377,647	2,675,804	857	..	291	25.3
	Central of New Jersey* 1948	418	78,487	82,031	9,285	3,221	66.0	243,403	127,929	47	..	16	25.4
	1947	419	91,027	102,636	18,544	3,429	67.5	246,672	121,165	54	..	25	31.6
	Central of Pennsylvania 1948	213	79,018	89,363	16,034	2,932	67.9	214,364	114,601	40	..	14	25.9
	1947	213	91,871	111,880	26,364	3,453	68.7	251,520	135,095	55	..	7	11.3
	Chicago & Eastern Ill. 1948	909	170,092	170,563	3,919	5,476	68.8	362,707	174,581	56	..	12	17.6
	1947	910	189,293	190,077	3,768	5,619	71.5	371,129	186,739	58	..	19	24.7
	Elgin, Joliet & Eastern 1948	391	121,307	127,044	4,010	3,758	66.9	283,978	151,343	47	..	4	7.8
	1947	391	135,119	138,982	3,808	4,102	64.8	320,337	171,670	56	..	7	11.1
	Pennsylvania System 1948	10,023	3,680,371	4,124,260	534,232	141,091	64.4	9,766,779	4,601,244	1,805	33	308	14.4
	1947	10,031	4,282,428	4,850,998	661,033	165,789	66.6	11,459,017	5,630,113	1,959	2	296	13.1
	Reading 1948	1,350	472,022	519,892	55,002	16,560	63.5	1,283,830	691,235	226	8	27	10.3
	1947	1,357	527,328	586,195	68,344	18,367	66.3	1,402,209	773,165	242	20	45	14.7
	Western Maryland 1948	837	193,977	226,886	29,905	6,400	61.5	522,333	280,801	154	1	15	8.8
	1947	837	240,426	298,247	44,784	8,462	62.5	706,286	389,307	158	1	11	6.5
Pocahontas Region	Chesapeake & Ohio 1948	5,003	1,425,677	1,522,308	62,745	54,483	58.4	4,360,760	2,349,746	600	22	92	12.9
	1947	4,980	1,773,993	1,899,337	84,530	76,299	59.3	6,278,807	3,522,148	619	1	71	10.3
	Norfolk & Western 1948	2,107	677,995	723,980	49,833	28,883	60.5	2,238,548	1,249,982	233	47	27	8.8
	1947	2,108	848,167	918,471	76,002	39,456	59.4	3,423,260	1,895,286	276	24	15	4.8
Southern Region	Atlantic Coast Line 1948	5,552	1,048,238	1,077,758	17,460	27,310	63.9	1,846,701	824,631	364	..	75	17.1
	1947	5,556	1,093,833	1,109,085	17,373	27,922	66.7	1,831,880	837,031	384	18	46	10.3
	Central of Georgia* 1948	1,783	307,554	312,616	5,563	7,812	71.6	514,510	245,190	95	2	9	8.5
	1947	1,782	312,768	319,873	6,826	7,746	73.4	507,914	242,331	100	..	10	9.1
	Gulf, Mobile & Ohio 1948	2,847	373,734	377,372	229	16,623	72.8	1,061,369	512,606	187	7	12	5.8
	1947	2,846	470,605	511,380	3,213	18,362	73.1	1,181,876	571,311	175	8	19	9.4
	Illinois Central 1948	6,581	1,423,950	1,430,302	48,285	52,004	64.3	3,595,245	1,669,031	500	69	80	12.3
	1947	6,582	1,591,213	1,612,663	56,308	59,879	67.6	4,048,216	1,948,633	584	2	88	13.1
	Louisville & Nashville 1948	4,750	1,451,533	1,570,458	41,658	35,523	63.6	2,533,644	1,274,800	403	..	79	16.4
	1947	4,759	1,649,916	1,797,768	52,282	42,063	64.9	3,020,329	1,567,453	388	6	81	17.1
	Nash., Chatt. & St. Louis 1948	1,051	283,496	298,881	8,934	6,861	76.3	425,911	202,715	83	..	13	13.5
	1947	1,052	302,117	328,891	8,831	7,203	78.9	441,696	216,133	93	..	14	13.5
	Seaboard Air Line 1948	4,141	881,301	943,348	14,263	25,858	67.0	1,761,461	799,223	295	..	56	16.0
	1947	4,145	958,046	1,022,259	14,539	27,543	69.5	1,814,196	840,580	305	..	43	12.4
	Southern 1948	6,449	1,666,256	1,693,301	26,432	45,436	69.5	2,856,509	1,275,142	562	21	92	13.6
	1947	6,451	2,023,299	2,052,679	35,709	49,960	69.9	3,189,216	1,454,180	573	19	108	15.4
Northwestern Region	Chicago & North Western 1948	8,055	984,654	1,028,209	24,423	31,839	67.9	2,131,055	971,090	352	12	113	23.7
	1947	8,061	1,099,509	1,147,043	38,826	36,014	70.6	2,377,621	1,080,420	362	4	111	23.3
	Chicago Great Western 1948	1,445	228,080	229,451	9,695	8,957	68.7	579,291	253,066	50	2	25	32.5
	1947	1,445	304,682	306,855	16,755	9,683	71.8	625,730	286,439	66	..	14	17.5
	Chic., Milw., St. P. & Pac. 1948	10,663	1,450,185	1,511,003	63,548	45,768	67.4	3,036,860	1,380,218	474	40	108	17.4
	1947	10,725	1,523,459	1,611,080	63,199	51,582	69.0	3,417,673	1,612,212	486	29	101	16.4
	Chic., St. P., Minn. & Omaha 1948	1,606	228,038	244,418	13,398	5,715	67.1	394,094	178,249	80	..	38	32.2
	1947	1,606	246,767	263,617	18,062	6,642	70.0	449,837	205,925	82	..	32	28.1
	Duluth, Missabe & Iron Range 1948	569	34,336	34,498	675	530	50.0	40,572	17,775	30	2	18	36.0
	1947	547	31,825	32,033	555	584	53.1	42,557	19,716	32	7	18	31.6
	Great Northern 1948	8,237	1,058,168	1,055,928	40,900	37,435	65.9	2,561,320	1,122,182	350	55	80	16.5
	1947	8,237	1,110,587	1,114,851	43,945	38,453	66.5	2,658,696	1,215,579	355	47	75	15.7
	Minneap., St. P. & S. Ste. M. 1948	4,180	435,176	446,236	10,561	12,300	69.3	777,656	357,904	124	..	18	12.7
	1947	4,181	505,669	519,313	10,899	14,849	70.3	961,603	462,727	126	..	22	14.9
	Northern Pacific 1948	6,613	839,782	880,529	52,964	30,785	69.9	2,070,645	981,229	355	27	43	10.1
	1947	6,625	892,087	921,361	54,425	33,633	70.6	2,281,228	1,130,874	349	35	56	12.7
Central Western Region	Atch., Top. & S. Fe (incl. G. C. & S. F. & P. & S. F.) 1948	13,082	2,826,329	2,982,517	122,328	102,626	66.1	6,839,765	2,784,915	684	131	138	14.5
	1947	13,107	2,755,532	2,895,260	132,046	104,859	69.4	6,695,551	2,725,524	687	171	118	12.1
	Chic., Burl. & Quincy 1948	8,670	1,283,585	1,311,814	44,231	49,584	63.4	3,384,405	1,486,666	405	31	101	18.8
	1947	8,671	1,439,201	1,488,361	58,815	56,698	65.9	3,932,597	1,833,410	433	18	77	14.6
	Chic., Rock Is. & Pac. 1948	7,618	1,231,449	1,268,089	16,370	40,266	64.7	2,644,291	1,130,105	261	42	78	20.5
	1947	7,619	1,347,583	1,372,383	16,549	43,898	66.4	2,865,458	1,258,987	308	10	89	21.9
	Denver & R. G. Wn. 1948	2,443	332,803	372,087	47,130	11,405	74.2	768,139	387,692	137	47	45	19.7
	1947	2,471	381,002	433,673	52,939	12,059	73.6	820,524	412,890	137	56	45	18.9
	Southern Pacific 1948	8,109	1,996,251	2,222,054	369,466	84,332	68.9	5,497,997	2,341,598	695	27	175	19.5
	1947	8,159	2,122,897	2,393,794	434,468	88,687	72.1	5,673,022	2,468,767	743	10	213	22.0
	Union Pacific 1948	9,752	2,080,579	2,169,086	178,812	84,855	69.8	5,545,166	2,617,779	562	110	99	12.8
	1947	9,775	2,447,936	2,583,468	199,697	96,080	70.5	6,375,362	2,919,945	644	95	114	13.4
	Western Pacific 1948	1,192	218,248	238,062	24,150	9,424	77.5	583,287	277,571	68	41	18	14.2
	1947	1,192	261,800	293,644	44,037	10,936	77.9	691,662	343,263	95	21	19	14.1
Southwestern Region	International-Gt. Northern 1948	1,110	270,489	272,043	1,530	7,018	64.5	496,934	225,846	71	..	9	11.3
	1947	1,110	265,552	270,201	1,150	6,958	66.0	480,339	207,240	73	..	12	14.1
	Kansas City Southern 1948	885	192,239	194,605	1,347	8,639	67.1	583,515	267,133	43	8	4	7.3
	1947	885	231,623	258,510	4,130	9,314	66.8	632,005	300,744	61	1	14	18.4
	Mo.-Kans.-Texas Lines 1948	3,241	485,386	495,436	8,643	16,089	65.4	1,036,528	446,902	118	1	35	22.7
	1947	3,241	535,103	545,697	8,836	15,946	66.2	1,038,345	461,432	117	..	49	29.5
	Missouri Pacific* 1948	6,986	1,532,488	1,579,647	30,694	50,413	64.1	3,443,953	1,474,882	423	11	61	12.3
	1947	7,012	1,681,980	1,735,342	43,868	57,080	66.0	3,868,388	1,714,446	431	5	51	10.5
	Texas & Pacific 1948	1,852	588,942	588,942	14,590	18,026	59.7	1,281,927	511,012	124	..	10	7.5
	1947	1,871	404,229	404,229	7,599	13,349	67.6	878,922	358,068	107	27	16	10.7
	St. Louis-San Francisco 1948	4,615	930,959	959,504	11,319	23,343	64.9	1,579,524	683,431	302	2	29	8.7
	1947	4,615	1,005,909	1,040,816	12,638	24,686	65.8	1,677,872	748,679	288	12	30	9.1
	St. Louis Southwestern Lines 1948	1,568	452,152	453,815	6,337	17,289	73.5	1,042,336	465,939	91	7	8	7.5
	1947	1,568	405,705	407,622	5,403	16,943	79.0	962,170	430,104	87	10	16	14.2
	Texas & New Orleans 1948	4,314	990,055	990,558	15,907	27,741	71.4	1,813,916	808,605	217	1	33	13.1
	1947	4,318	1,013,241	1,014,185	14,385	28,290	73.7	1,804,133	807,763	210	..	40	16.0

*Report of trustee or trustees.

Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission. Subject to revision.

Items for the Month of January 1948 Compared with January 1947

Region	Road	Year	Freight cars on line: Home	Foreign	Total	Per Cent B.O.	B.t.m.per train-hr. excl.locos and tenders	G.t.m.per train-hr. excl.locos and tenders	Net ton-mi. per train-mile	Net ton-mi. per l'd car-mile	Net ton-mi. per car-day	Net miles per car-day	Net daily ton-mi. per road-mi.	Coal lb. per 1000 g.t.m. inc. loco.	Mi. per loco. per day
New Eng. Region	Boston & Albany	1948	231	5,517	5,748	0.6	21,615	1,539	598	25.2	401	26.2	7,334	185	61.3
		1947	215	5,032	5,247	0.2	22,095	1,400	570	24.6	518	31.1	7,597	197	76.3
	Boston & Maine	1948	1,720	10,613	12,333	2.2	34,484	2,363	993	26.7	802	44.4	6,462	114	114.7
		1947	1,087	11,995	13,082	1.8	36,375	2,397	1,024	26.2	901	48.1	6,459	107	93.8
	N. Y., N. H. & Htfd.	1948	1,405	19,353	20,758	1.6	31,973	2,376	1,053	26.9	537	28.8	7,118	89	98.5
		1947	1.231	20,745	21,976	1.6	32,210	2,259	994	25.3	586	31.6	7,050	102	85.6
Great Lakes Region	Delaware & Hudson	1948	3,185	6,459	9,644	4.6	53,029	3,166	1,676	38.2	1,584	62.3	21,179	120	78.5
		1947	2,001	8,046	10,047	3.4	54,684	3,177	1,739	38.7	1,808	66.0	22,543	111	76.7
	Del., Lack. & Western	1948	5,054	11,579	16,633	4.7	40,627	2,765	1,246	30.4	760	37.4	14,747	118	111.9
		1947	3,436	15,202	18,638	3.1	43,353	2,872	1,337	30.7	793	36.1	14,938	117	89.5
	Erie	1948	7,400	22,323	29,723	4.2	52,856	3,299	1,379	27.4	985	55.6	14,749	112	81.7
		1947	4,498	27,254	31,752	2.8	50,302	3,136	1,369	27.5	1,148	59.9	16,182	106	87.1
	Grand Trunk Western	1948	3,929	10,163	14,092	6.7	38,062	2,054	868	26.9	572	31.6	8,542	95	143.7
		1947	3,385	13,887	17,272	4.1	41,024	2,176	972	27.4	574	28.9	9,225	94	139.4
	Lehigh Valley	1948	7,353	13,374	20,727	7.2	49,803	2,942	1,387	32.4	645	30.3	11,724	114	94.2
		1947	3,641	16,094	19,735	3.6	51,582	3,077	1,500	32.3	761	33.5	12,117	112	85.5
	New York Central	1948	52,921	92,140	145,061	3.5	36,090	2,475	1,105	31.1	746	39.2	11,080	123	96.8
		1947	40,524	117,311	157,835	2.9	38,334	2,634	1,234	31.9	843	40.6	12,769	117	100.9
	New York, Chic. & St. L.	1948	2,899	12,147	15,046	1.9	46,925	2,534	1,089	28.1	1,520	82.7	14,822	99	146.9
		1947	1,706	15,788	17,494	1.6	47,885	2,551	1,154	29.1	1,554	76.0	16,168	96	159.1
	Pitts. & Lake Erie	1948	5,358	11,128	16,486	5.1	46,894	3,123	1,811	49.1	381	12.1	25.610	114	74.8
		1947	2,064	8,373	10,437	3.2	48,426	3,179	1,826	47.8	576	18.8	27,167	109	79.6
	Wabash	1948	5,463	14,105	19,568	2.9	44,175	2,298	1,001	27.5	1,043	53.6	8,622	118	111.6
		1947	4,231	18,174	22,405	1.8	45,286	2,348	1,069	28.1	1,074	51.5	9,790	118	117.1
Central Eastern Region	Baltimore & Ohio	1948	50,389	41,326	91,715	5.9	31,620	2,467	1,195	34.6	835	37.2	12,292	158	80.1
		1947	33,097	54,560	87,657	4.3	30,969	2,532	1,260	35.7	994	42.5	14,143	164	87.5
	Central of New Jersey*	1948	620	10,317	10,937	4.5	38,223	3,199	1,681	39.7	362	13.8	9,873	113	75.5
		1947	508	9,972	10,480	2.0	33,758	2,791	1,371	35.3	374	15.7	9,328	141	76.5
	Central of Pennsylvania	1948	884	3,829	4,713	7.1	37,900	2,862	1,530	39.1	773	29.1	17,356	143	73.2
		1947	954	4,051	5,005	6.4	35,921	2,837	1,524	39.1	852	31.7	20,460	149	81.8
	Chicago & Eastern Ill.	1948	2,476	4,143	6,619	4.0	37,026	2,190	1,054	31.9	908	41.4	6,195	121	84.8
		1947	1,607	4,503	6,110	4.8	33,598	1,986	999	33.2	1,019	42.9	6,620	131	86.0
	Elgin, Joliet & Eastern	1948	6,510	11,648	18,158	2.4	14,824	2,478	1,321	40.3	260	9.7	12,486	171	116.4
		1947	6,573	10,536	17,109	1.2	14,708	2,517	1,349	41.9	272	10.0	14,163	156	122.0
	Pennsylvania System	1948	123,023	117,221	240,244	9.5	36,079	2,735	1,288	32.6	624	29.7	14,809	139	76.3
		1947	105,033	136,732	241,765	9.6	35,033	2,777	1,364	34.0	734	32.5	18,106	136	85.3
	Reading	1948	9,328	22,524	31,852	3.7	32,611	2,730	1,470	41.7	683	25.8	16,517	114	83.1
		1947	7,962	29,107	37,069	2.5	33,695	2,664	1,469	42.1	684	24.5	18,379	120	79.4
	Western Maryland	1948	4,953	4,088	9,041	.8	29,492	2,740	1,473	43.9	1,131	41.9	10,822	156	53.2
		1947	2,592	8,155	10,747	.9	29,411	2,985	1,646	46.0	1,255	43.6	15,004	167	71.2
Pocahontas Region	Chesapeake & Ohio	1948	58,935	26,564	85,499	3.1	47,680	3,100	1,670	43.1	985	39.1	15,151	96	77.7
		1947	40,430	33,077	73,507	1.5	53,777	3,598	2,018	46.2	1,617	59.1	22,815	88	99.3
	Norfolk & Western	1948	39,050	6,615	45,665	1.8	54,093	3,351	1,871	44.1	996	37.3	19,137	109	87.5
		1947	25,891	8,135	34,026	2.2	63,514	4,105	2,273	48.0	1,791	62.8	29,003	99	109.8
Southern Region	Atlantic Coast Line	1948	8,764	19,348	28,112	5.0	27,207	1,767	789	30.2	911	47.3	4,791	129	89.1
		1947	7,103	21,473	28,576	3.4	27,489	1,680	768	30.0	945	47.2	4,860	130	86.8
	Central of Georgia*	1948	1,999	6,229	8,228	3.5	30,025	1,679	800	31.4	1,032	46.0	4,436	138	103.5
		1947	1,242	6,448	7,690	2.0	29,886	1,632	779	31.3	1,001	43.6	4,387	142	103.9
	Gulf, Mobile & Ohio	1948	2,849	12,171	15,020	1.7	53,521	2,850	1,377	30.8	1,097	48.9	5,808	76	63.0
		1947	2,250	13,275	15,525	1.4	44,782	2,516	1,216	31.1	1,265	55.6	6,476	91	86.6
	Illinois Central	1948	20,832	36,710	57,542	1.3	41,791	2,563	1,190	32.1	987	47.8	8,181	131	77.7
		1947	13,632	33,732	47,364	1.2	44,111	2,601	1,252	32.5	1,317	59.9	9,550	134	84.6
	Louisville & Nashville	1948	39,470	15,608	55,078	2.6	26,705	1,745	878	35.9	840	36.8	8,657	146	112.3
		1947	24,584	18,747	43,331	4.3	27,250	1.831	950	37.3	1,174	48.5	10,625	146	129.8
	Nash., Chatt. & St. Louis	1948	1,459	4,922	6,381	3.9	28,600	1,511	719	29.5	920	40.8	6,222	141	108.8
		1947	680	5,507	6,187	2.5	28,579	1,466	718	30.0	1,057	44.6	6,627	138	108.1
	Seaboard Air Line	1948	6,627	16,124	22,751	1.8	34,497	2,051	931	30.9	1,094	52.8	6,226	119	102.7
		1947	4,878	19,289	24,167	1.7	32,946	1,955	906	30.5	1,130	53.3	6,542	126	108.1
	Southern	1948	13,075	29,358	42,433	4.4	29,051	1,734	774	28.1	944	48.4	6,378	131	88.6
		1947	12,379	32,154	44,533	5.1	26,866	1,596	728	29.1	1,037	51.0	7,272	144	101.9
Northwestern Region	Chicago & North Western	1948	19,504	34,381	53,885	3.2	31,320	2,265	1,032	30.5	584	28.2	3,889	139	77.3
		1947	17,237	40,300	57,537	3.2	31,553	2,289	1,040	30.0	603	28.5	4,324	141	84.3
	Chicago Great Western	1948	1,194	4,617	5,811	4.0	40,709	2,541	1,110	28.3	1,358	70.0	5,649	134	100.8
		1947	692	4,603	5,295	2.4	35,533	2,054	940	29.6	1,671	78.6	6,394	137	136.5
	Chic., Milw., St. P. & Pac.	1948	22,600	38,628	61,228	2.1	30,583	2,117	962	30.2	676	33.3	4,175	136	87.8
		1947	16,951	43,038	59,989	1.6	34,130	2,264	1,068	31.3	820	38.0	4,849	126	95.3
	Chic., St. P., Minn. & Omaha	1948	879	7,075	7,954	5.4	22,575	1,786	808	31.2	689	32.9	3,580	129	78.5
		1947	834	7,803	8,637	5.3	24,599	1,868	855	31.0	744	34.3	4,136	124	84.8
	Duluth, Missabe & Iron Range	1948	14,586	688	15,274	3.1	15,474	1,242	544	33.5	38	2.3	1,008	196	27.7
		1947	14,844	547	15,391	2.5	18,982	1,411	654	33.8	41	2.3	1,163	156	22.6
	Great Northern	1948	21,228	22,470	43,698	2.6	37,684	2,434	1,067	30.0	842	42.7	4,395	116	79.1
		1947	16,602	21,917	38,519	3.1	38,169	2,410	1,102	31.5	1,044	49.8	4,760	115	83.3
	Minneap., St. P. & S. Ste. M.	1948	6,147	9,714	15,861	5.4	29,796	1,799	828	29.1	714	35.4	2,762	112	109.7
		1947	4,677	8,058	12,735	3.8	32,338	1,928	928	31.2	1,055	48.2	3,570	102	124.9
	Northern Pacific	1948	17,270	18,796	36,066	4.3	41,660	2,479	1,175	31.9	896	40.2	4,786	154	77.4
		1947	14,788	17,140	31,928	3.9	43,172	2,634	1,306	33.6	1,150	48.5	5,506	144	77.2
Central Western Region	Atch., Top. & S. Fe (incl. G. C. & S. F. & P. & S. F.)	1948	38,004	33,298	71,302	6.2	48,484	2,429	989	27.1	1,318	73.5	6,867	108	109.4
		1947	33,385	37,592	70,977	4.9	48,943	2,439	993	26.0	1,223	67.8	6,708	108	105.7
	Chic., Burl. & Quincy	1948	15,961	25,936	41,897	3.5	45,195	2,648	1,163	30.0	1,139	59.9	5,531	107	86.2
		1947	11,607	31,777	43,384	3.8	46,118	2,746	1,280	32.3	1,378	64.7	6,821	107	98.0
	Chic., Rock I. & Pac.	1948	8,997	24,687	33,684	4.1	37,578	2,152	920	28.1	1,091	60.1	4,785	111	112.3
		1947	7,786	28,073	35,859	2.9	37,735	2,133	937	28.7	1,145	60.1	5,330	109	114.6
	Denver & R. G. Wn.	1948	7,428	4,915	12,343	4.0	39,901	2,323	1,173	34.0	977	38.7	5,119	174	61.9
		1947	6,652	5,977	12,629	5.2	36,453	2,173	1,093	34.2	1,019	40.5	5,390	174	70.2
	Southern Pacific	1948	23,853	33,093	56,946	3.8	45,102	2,774	1,182	27.8	1,305	68.2	9,315	95	97.6
		1947	20,911	39,801	60,712	3.1	42,156	2,695	1,173	27.8	1,295	64.5	9,761	106	99.7
	Union Pacific	1948	26,134	30,906	57,040	3.5	55,135	2,687	1,269	30.9	1,521	70.6	8,659	131	101.4
		1947	23,599	38,054	61,653	2.7	51,655	2,627	1,203	30.4	1,532	71.5	9,636	128	107.4
	Western Pacific	1948	2,094	3,032	5,126	6.2	57,129	2,698	1,284	29.5	1,670	73.2	7,512	53	68.9
		1947	2,630	3,679	6,309	3.2	55,649	2,707	1,343	31.4	1,756	71.8	9,289	64	80.8
Southwestern Region	International Gt. Northern	1948	477	6,910	7,387	1.3	33,686	1,863	847	32.2	1,012	48.7	6,563	94	115.9
		1947	300	6,576	6,876	1.0	34,178	1,832	790	29.8	984	50.0	6,023	111	106.9
	Kansas City Southern	1948	1,199	5,646	6,845	3.9	58,917	3,052	1,397	30.9	1,283	61.8	9,737	113	121.0
		1947	904	6,587	7,491	2.4	49,538	2,747	1,307	32.3	1,321	61.2	10,962	112	116.5
	Mo.-Kans.-Texas Lines	1948	1,909	7,756	9,665	.5	39,871	2,143	924	27.8	1,509	83.1	4,448	103	110.6
		1947	1,025	9,240	10,265	1.0	36,718	1,948	866	28.9	1,513	78.9	4,593	88	113.0
	Missouri Pacific*	1948	15,877	22,930	38,807	1.8	41,631	2,259	967	29.3	1,247	66.5	6,810	111	110.6
		1947	13,498	26,888	40,386	2.1	41,173	2,316	1,026	30.0	1,374	69.3	7,887	111	124.5
	Texas & Pacific	1948	1,683	9,065	10,748	2.3	40,084	2,197	876	28.3	1,618	95.6	8,901	99	155.5
		1947	1,033	6,510	7,543	1.9	44,496	2,192	893	26.8	1,505	83.0	6,173	94	92.7
	St. Louis-San Francisco	1948	6,322	12,495	18,817	2.0	34,403	1,704	737	29.3	1,167	61.4	4,777	133	100.0
		1947	4,193	15,471	19,664	2.1	32,863	1,671	746	30.3	1,255	62.9	5,233	135	109.5
	St. Louis Southw. Lines	1948	1,155	6,025	7,180	2.2	43,572	2,308	1,032	27.0	2,012	101.5	9,586	85	147.0
		1947	1,206	5,176	6,382	2.9	46,651	2,377	1,063	25.4	2,169	108.2	8,848	83	126.5
	Texas & New Orleans	1948	3,983	16,250	20,233	3.0	36,775	1,846	823	29.1	1,313	63.1	6,046	89	137.0
		1947	2,887	16,797	19,684	1.7	35,733	1,799	805	28.6	1,335	63.4	6,034	89	139.7

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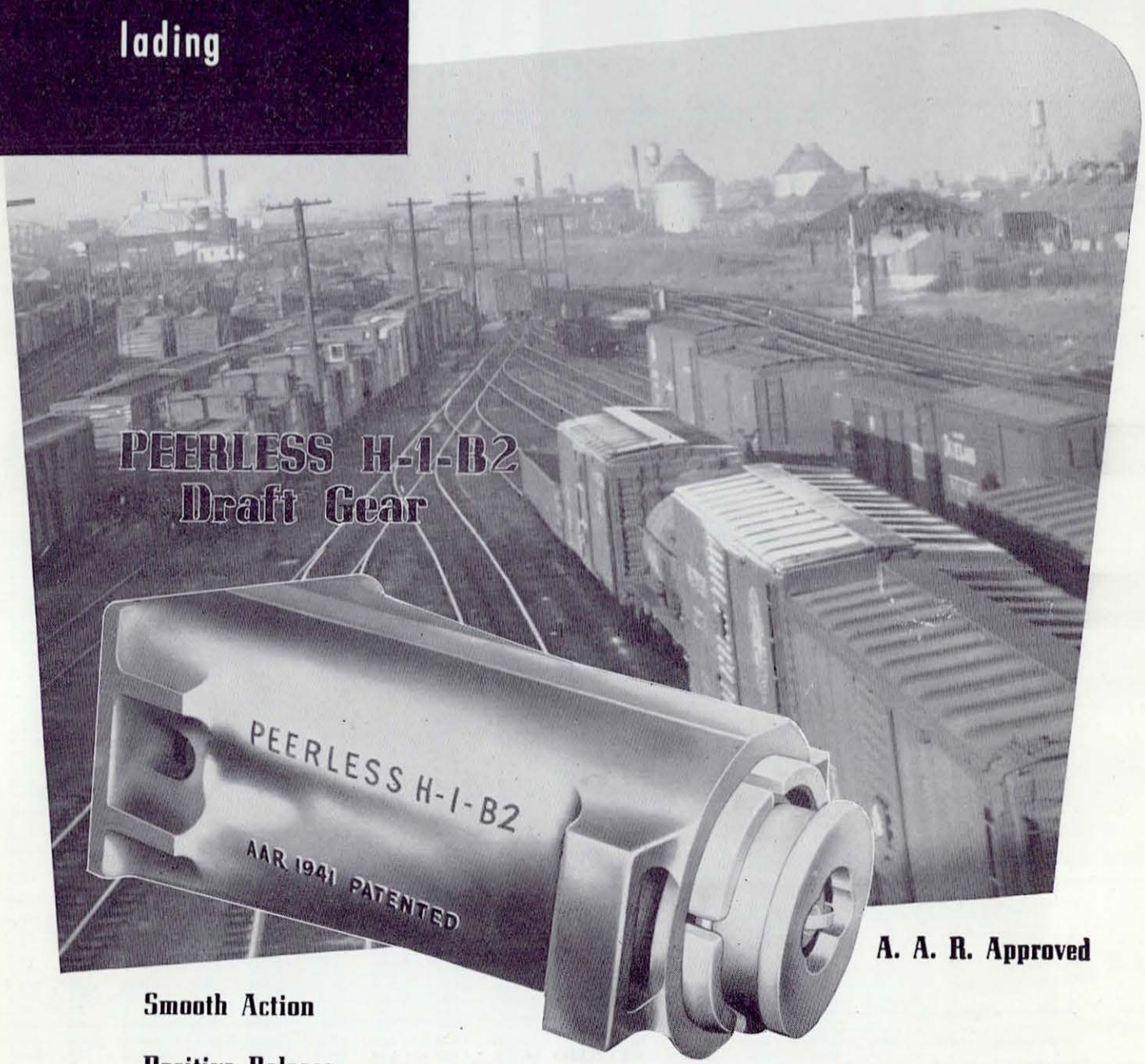

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(Continued from page 132)

Electro-Motive to Open Diesel Switcher Plant Near Cleveland

The Electro-Motive Division of General Motors Corporation plans to open a third plant near Cleveland, Ohio, next January, to be devoted exclusively to the manufacture of switching locomotives, according to C. R. Osborn, general manager of Electro-Motive. The plant was acquired recently by General Motors from the Navy, for which the facility was built in 1942. It will afford Electro-Motive 460,000 sq. ft. of additional floor space.

The company expects to begin moving machinery into the newly acquired plant in July. The space made available at the firm's plants No. 1 and No. 2, at La Grange, Ill., and Chicago, respectively, as a result of the move will be devoted to increased production of Diesel-electric road locomotives.

The plant is located on a 44½-acre site in Brooklyn, Ohio, a Cleveland suburb, and consists of a 765-ft. by 500-ft. main building, a two-story office building and a receiving warehouse area. A portion of the facility will be occupied by G.M.'s Cleveland Diesel Engine Division, which occupied the plant during the war as a builder of Diesel engines for the Navy.

Loss and Damage Payments up 30 Per Cent in 1947

The railroad's bill for freight loss and damage actually paid for in 1947 increased almost 30 per cent (29.6) over 1946, according to a circular issued by the Freight Claim Division of the Association of American Railroads. Payments on carload shipments were up 26.4 per cent and on l.c.l. freight, 36.6 per cent.

Of the 16 categories of causes, only one, "concealed loss," showed a decline; the remaining categories showed increases ranging from 63.2 per cent in payments arising from "error of employee" to 10.9 per cent for damage arising from "improper refrigeration or ventilation." The figures are based upon reports by 126 carriers, representing 95 per cent of mileage in the United States and Canada.

John Budd Reviews Military Railroading in World War II

Hope that the Army will, in its future planning, utilize more fully the leadership developed within the ranks of its Military Railway Service units was expressed by John M. Budd, president of the Chicago & Eastern Illinois, in an address before the Chicago Chapter of the Railway & Locomotive Historical Society on June 11. Talking at considerable length about the experiences of the M. R. S. in North Africa,

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France and Italy, (which he saw at first hand, lastly as commanding officer of the 727th Railway Operating Battalion) Mr. Budd commented, regarding personnel problems: "When the first units were activated, the railroads did not feel the loss of the officers very much, but as the draft continued to drain the men from the roads, the quality began to drop off . . . The most unfortunate part of this situation was that very deserving leaders had developed among the enlisted men of the earlier units. Many were commissioned in the field but a great many of them were not used to their full capacity."

The speaker characterized the basic principle behind the organization and mobilization of the service developed by General Carl R. Gray, Jr., as assuming that "it took a great deal more training to make a soldier into a railroad man than to make a railroad man into a soldier; and that there was so much similiarity between railroad operation and army procedure that the transition from civilian life to military life could be accomplished readily."

An interesting use of motive power by M. R. S. on the Italian lines was described by the speaker: "In the rehabilitation of these lines no provisions were made for water or fuel supplies until the railroad itself had been put together. About 125 Diesel locomotives which had been used in Egypt were shipped in o Italy and used on the forward parts of our lines. As water supplies were later established in the rear areas, oil-burning steam locomotives were used, and, in the very rear areas near the ports, coal-burning locomotives were used. The coal was put on tenders of these locomotives by cranes. As new lines were opened up we kept pushing Diesel engines to the forward lines and replaced them to the immediate rear with oil-burners and continued to use the coal burners as close to the ports as possible. This method of operation proved very successful."

The M. R. S. veteran sounded a plea for recording and passing on the knowledge gained during this war. He recalled that "a great deal of valuable and helpful training" from World War I was lost "because the experience of these men was not passed on with sufficient thoroughness. We encountered many of the World War I problems again in the recent conflict and had to worry our way through the hard way."

Says Diesel Power in 1955 Will Be Six Times That of Present

At least 40,000,000 hp. of Diesel locomotives will be at work on the nation's railroads by the end of 1955, compared with the present 7,000,000 hp., J. W. Barriger, president of the Chicago, Indianapolis & Louisville, told the Society of Automotive Engineers at a meeting in French Lick, Ind., on June 10.

He predicted the use, within the next few years, of larger Diesel engines which would allow more than 2,000 hp. to be placed in one cab of a road locomotive. The present small diameter driving wheels mounted on swivel trucks and directly geared to a single motor will not be standard practice much longer, he declared, adding the opinion that, in the future, two large motors will turn each pair of wheels.

The Monon president told his audience that he felt the next 10 to 12 years would bring about as much railroad progress as has occurred in the first 120 of railroad history. Locomotives of 12,000 hp. will be common standard in 1960, he said.

Nine Roads to Present Elaborate Joint Exhibit at Railroad Fair

Details of a large "Eastern Railroads Exhibit" to be presented jointly by nine roads at the Railroad Fair in Chicago, July 20 to September 6, inclusive, were announced this week. The display will include, among other things, 2,000 ft. of track exhibits, an outdoor restaurant, a model railroad and many individual exhibits. The participating roads are the Pennsylvania; New York Central; Baltimore & Ohio; Wabash; Erie; Boston & Maine; Maine Central; New York, Chicago & St. Louis; and Chicago, Indianapolis & Louisville.

Located at the entrance to the exhibit will be a 45-ft. tower of chromed railroad rails and mural scenes showing locomotives of the sponsoring railroads. A nine-foot mechanically and electronically operated "robot" dressed as an engineman will be stationed under the entrance canopy to answer questions of visitors. Inside will be numerous educational and institutional exhibits, dioramas depicting points of interest and industry along the lines of the participating railroads, a 20-ft. by 50-ft. operating model railroad and a motion picture theater. A patio area will be provided for the serving of light refreshments.

A.A.R. Medical Section Holds One-Day Meeting at Chicago

How railroads can help eliminate man-failure as a cause of train-service accidents was one of the many topics discussed by railroad physicians and surgeons attending the 28th annual meeting of the Medical and Surgical Section, Association of American Railroads, held in Chicago on June 21. The meeting—presided over by Dr. K. E. Dowd, chief medical officer of the Canadian National—featured committee reports and discussions on subjects of a technical nature.

To combat man-failure as a cause of train-service accidents, it was recommended that railroads require (1) periodic examinations of those whose age or previous condition would indicate that these examinations should be made; (2) re-examination of every em-

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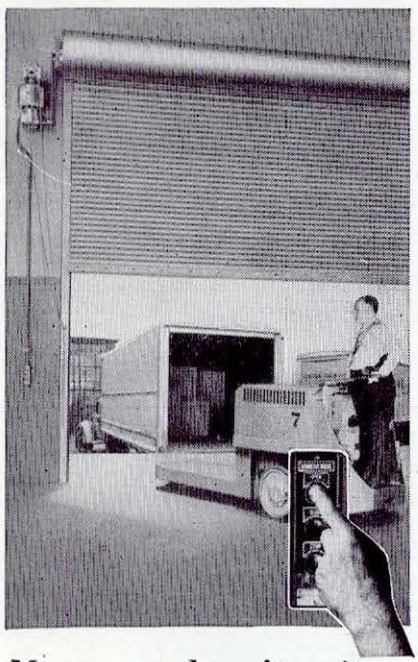

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ployee in train and engine service when he has been absent from work for any length of time; and (3) an immediate examination of any person involved in an accident to determine if a physical or mental aberration was involved.

Reports were rendered at the one-day session by the Committee on Disability and Rehabilitation, Dr. R. G. Carothers, chief surgeon of the Cincinnati, New Orleans & Texas Pacific, chairman; Committee on Developments Resulting from Physical Examinations, Dr. O. H. Horrall, chief surgeon of the Chicago, Burlington & Quincy, chairman; and the Committee on Fractures, Dr. Duncan Eve, chief surgeon of the Nashville, Chattanooga & St. Louis, chairman. A talk on "Human Wastes and the Railroad Passenger Car" was given by Lloyd Clark, project manager, Sanitation Research Project, A.A.R.

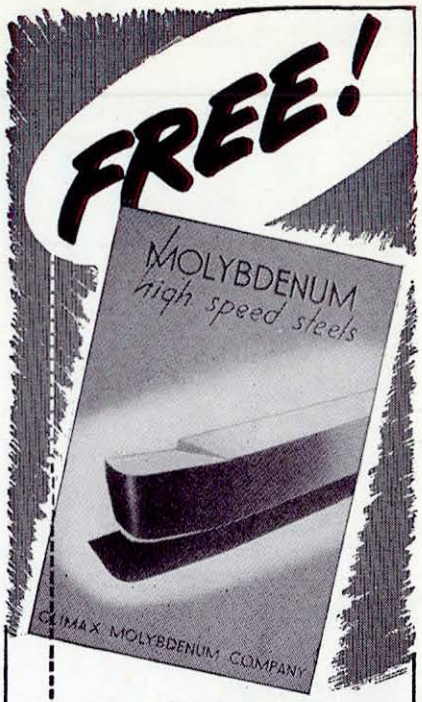
Carroll R. Harding, president of the Pullman Company, addressed the dinner meeting on "Operation of Sleeping Car Service by the Pullman Company Under Railroad Ownership." Officers elected for the coming year were Dr. R. M. Graham, director of sanitation and surgery of the Pullman Company, chairman, and Dr. O. H. Horrall, chief surgeon of the Burlington, vice-chairman.

Transportation Librarians Meet

Removal of travel barriers was the subject of a panel discussion at the Burlington Hotel Washington, D. C. on June 10, as one of the activities of the Transportation Group of the Special Libraries Association, in its annual convention in that city. Participants in the discussion were: Maurice M. Morton of the Civil Aeronautics Administration, acting executive secretary of the subcommittee on facilitation of civil aviation of the Air Coordinating Committee; George Knight of the Visa Division of the Department of State and member of the Travel Committee of the department; and James H. Stebbins of W. R. Grace Company, a member of the Committee for the Facilitation of Inter-American Travel of the Chamber of Commerce of the United States.

On June 9 the group was addressed by H. S. Fairbank, deputy commissioner of the Public Roads Administration, who explained that traffic needs' studies show no need of super-highways in the sense of high-volume transcontinental roads, but indicate a definite need for intensive development of some 35,000 to 40,000 miles of highways, particularly that 1 per cent leading into and out of large cities.

A committee of the Transportation Group was appointed to plan for the assembling of material for, and the publication of, a list of transportation source material for research workers in the field. Edith C. Stone of *Railway Age* is chairman of the committee. Agnes Gautreaux of the Civil Aeronautics Administration is chairman of the Special Libraries Association's Transportation Group, and presided at the meetings



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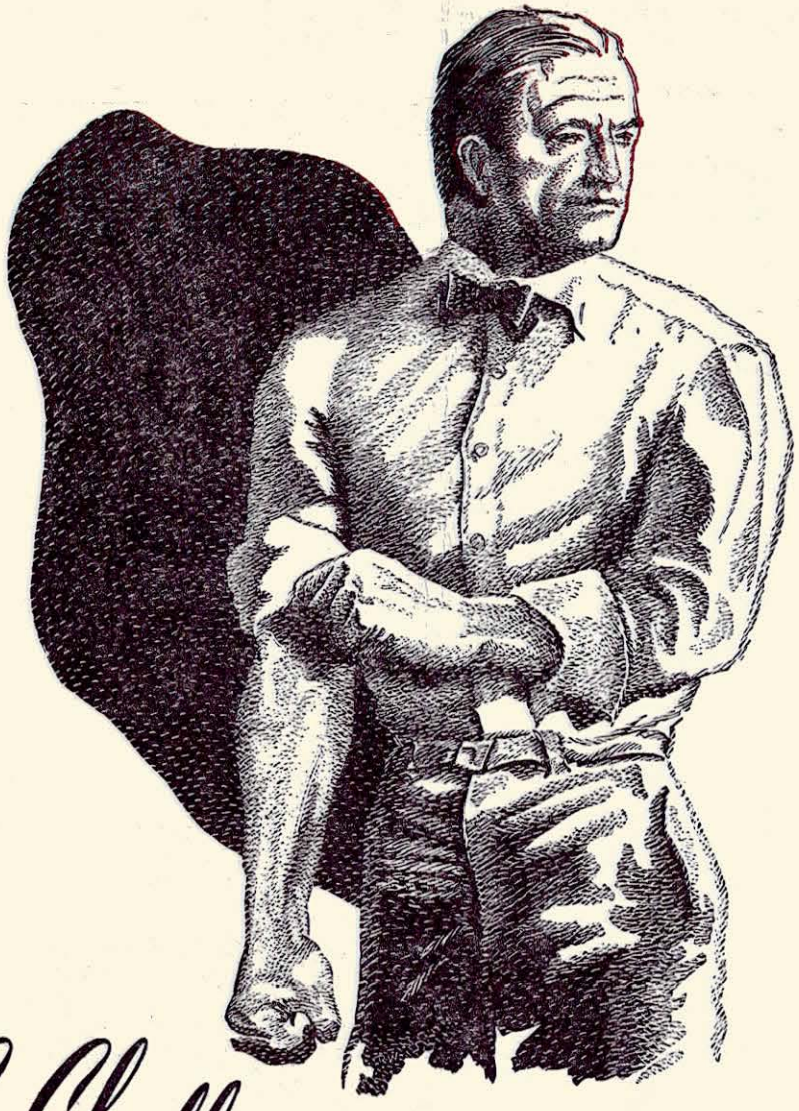

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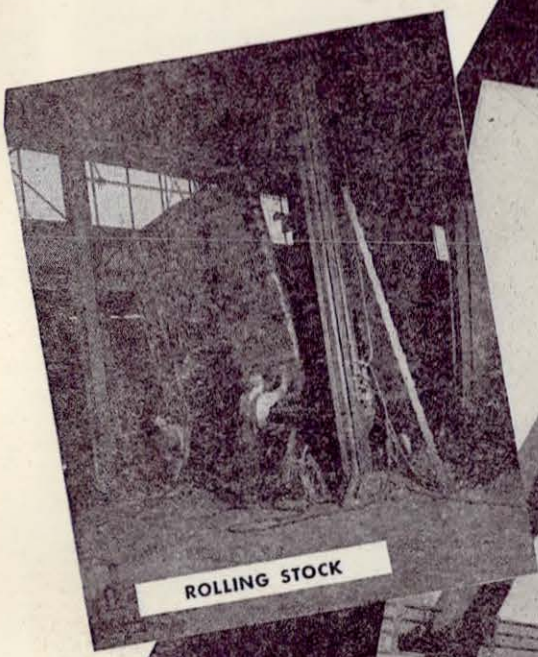

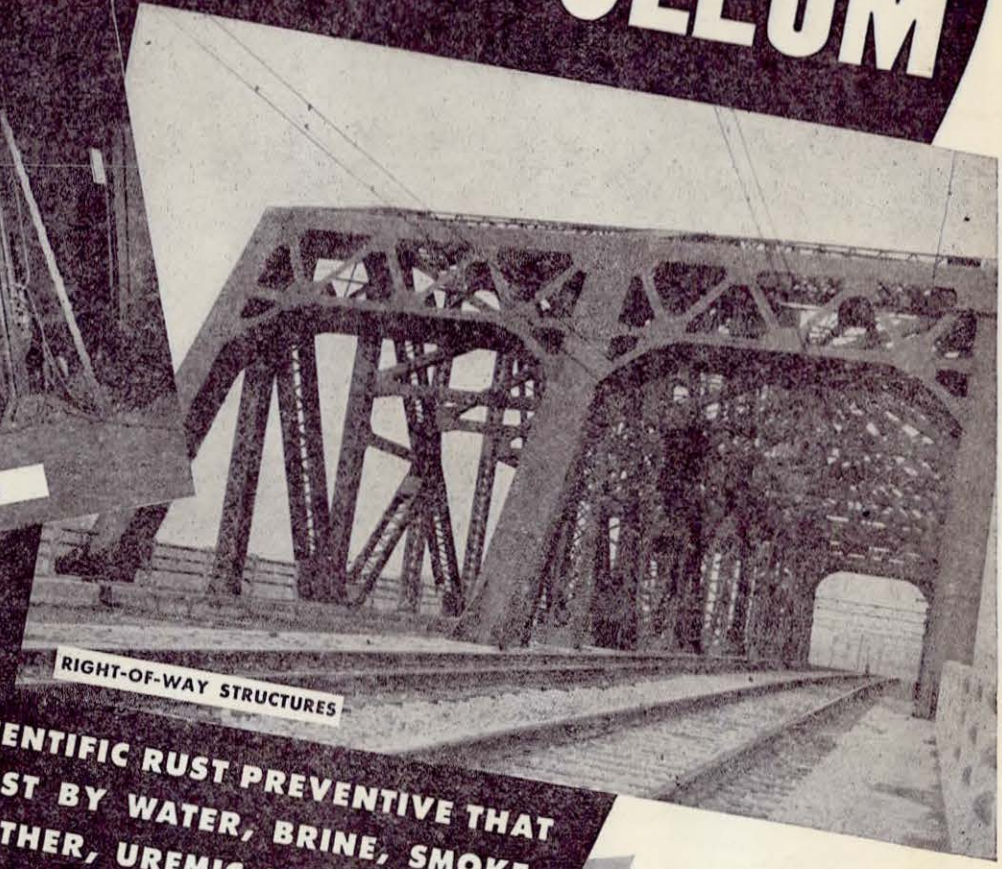

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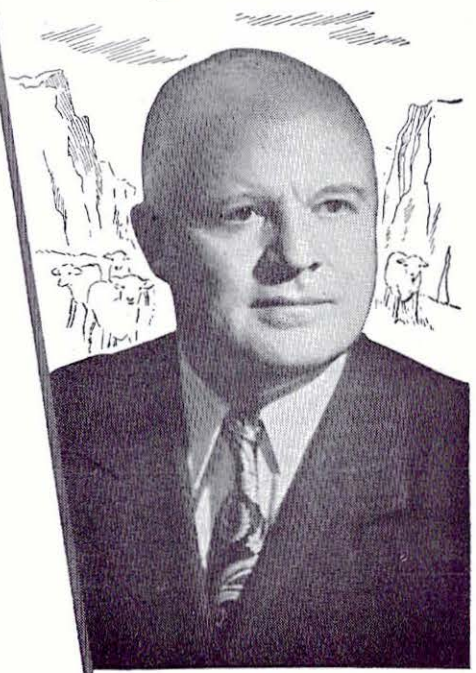

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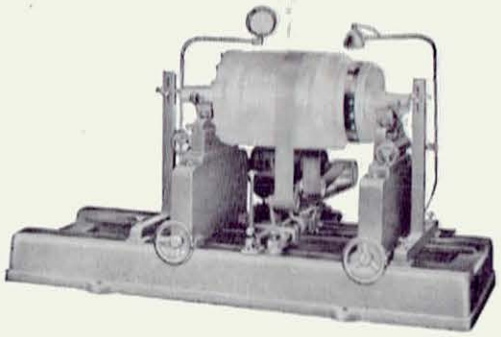

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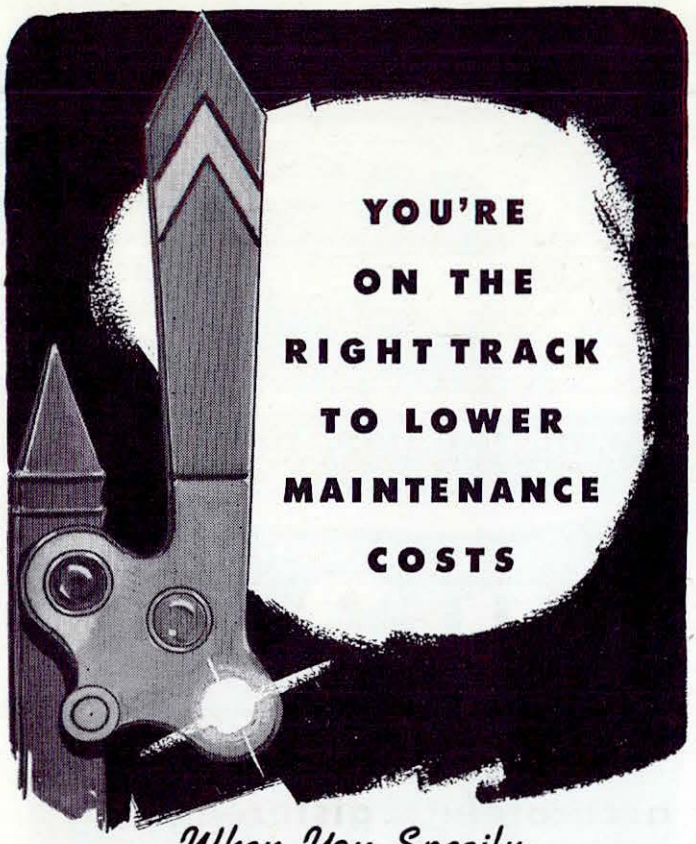

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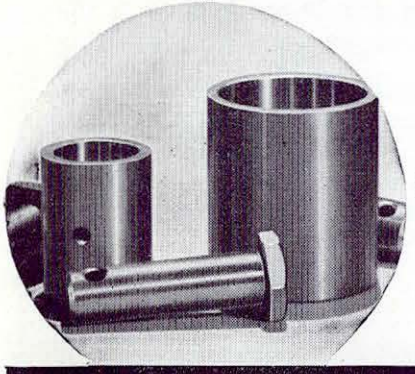

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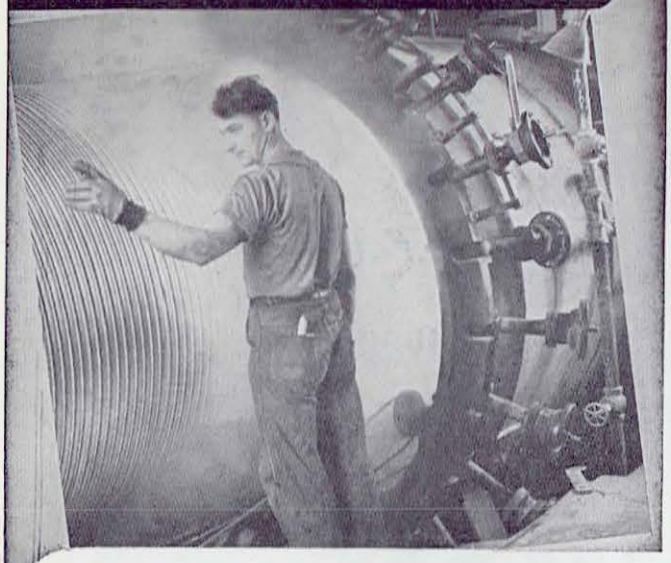

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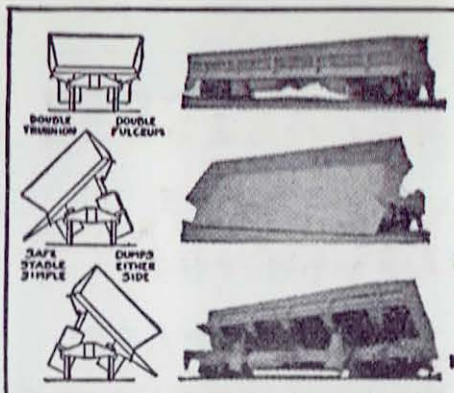

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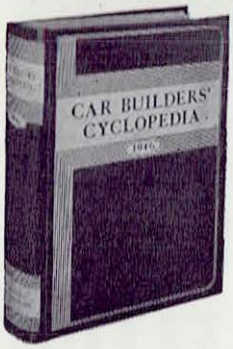

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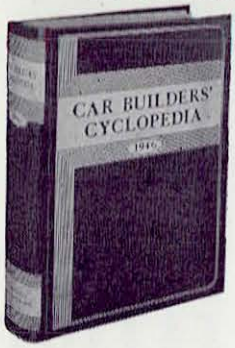

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